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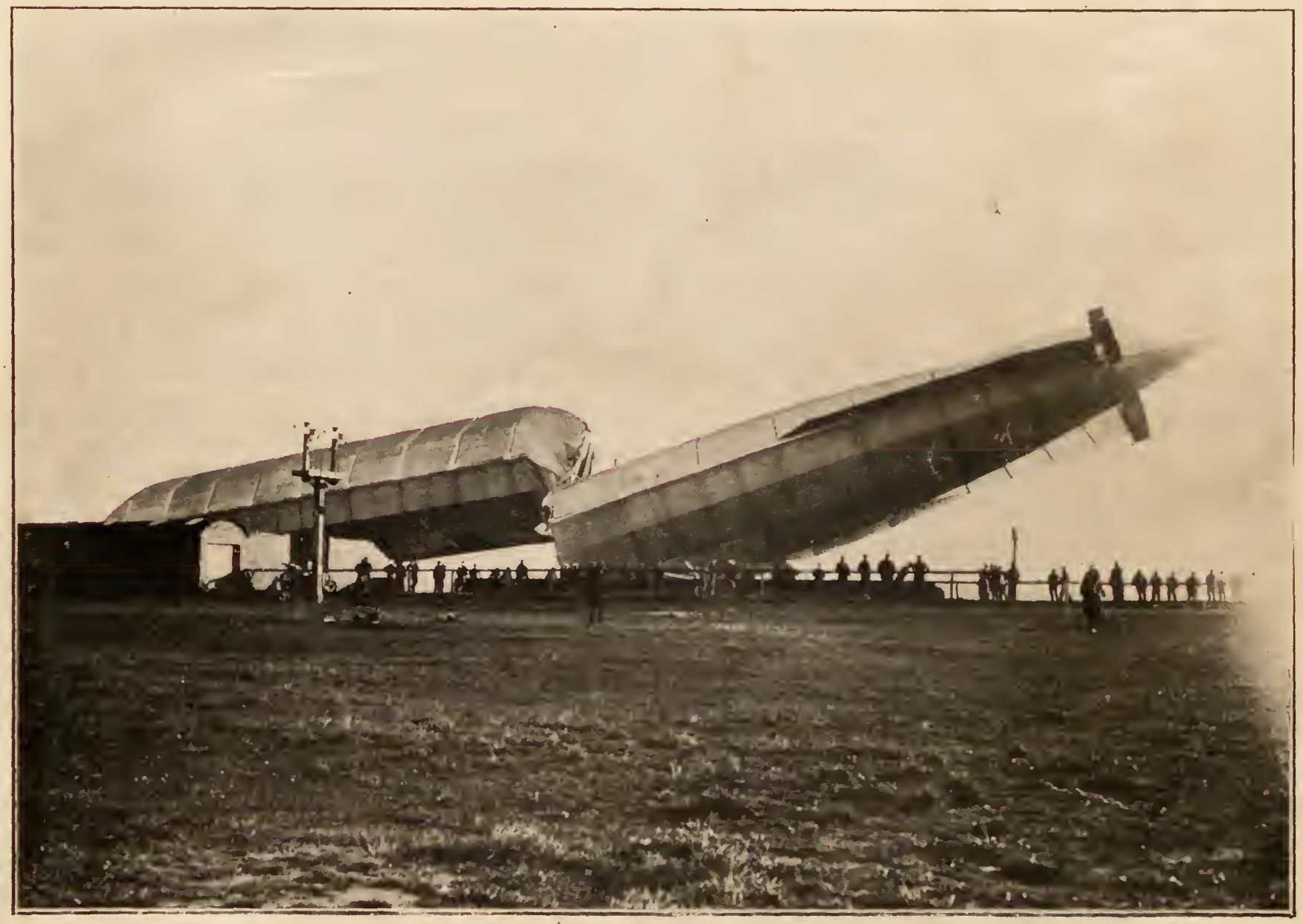


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VOL. IV. NO. 1

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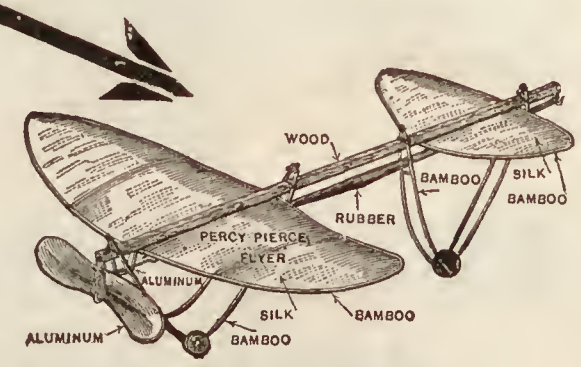
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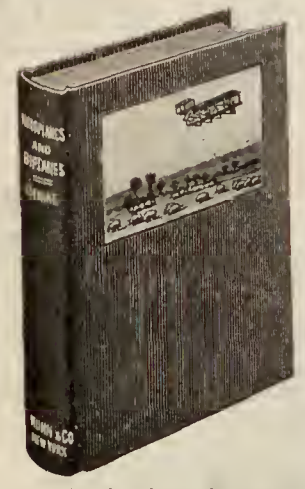
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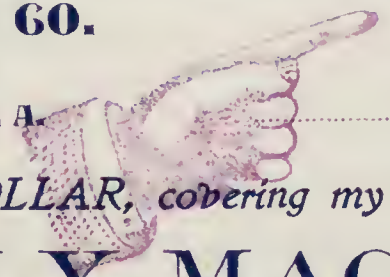
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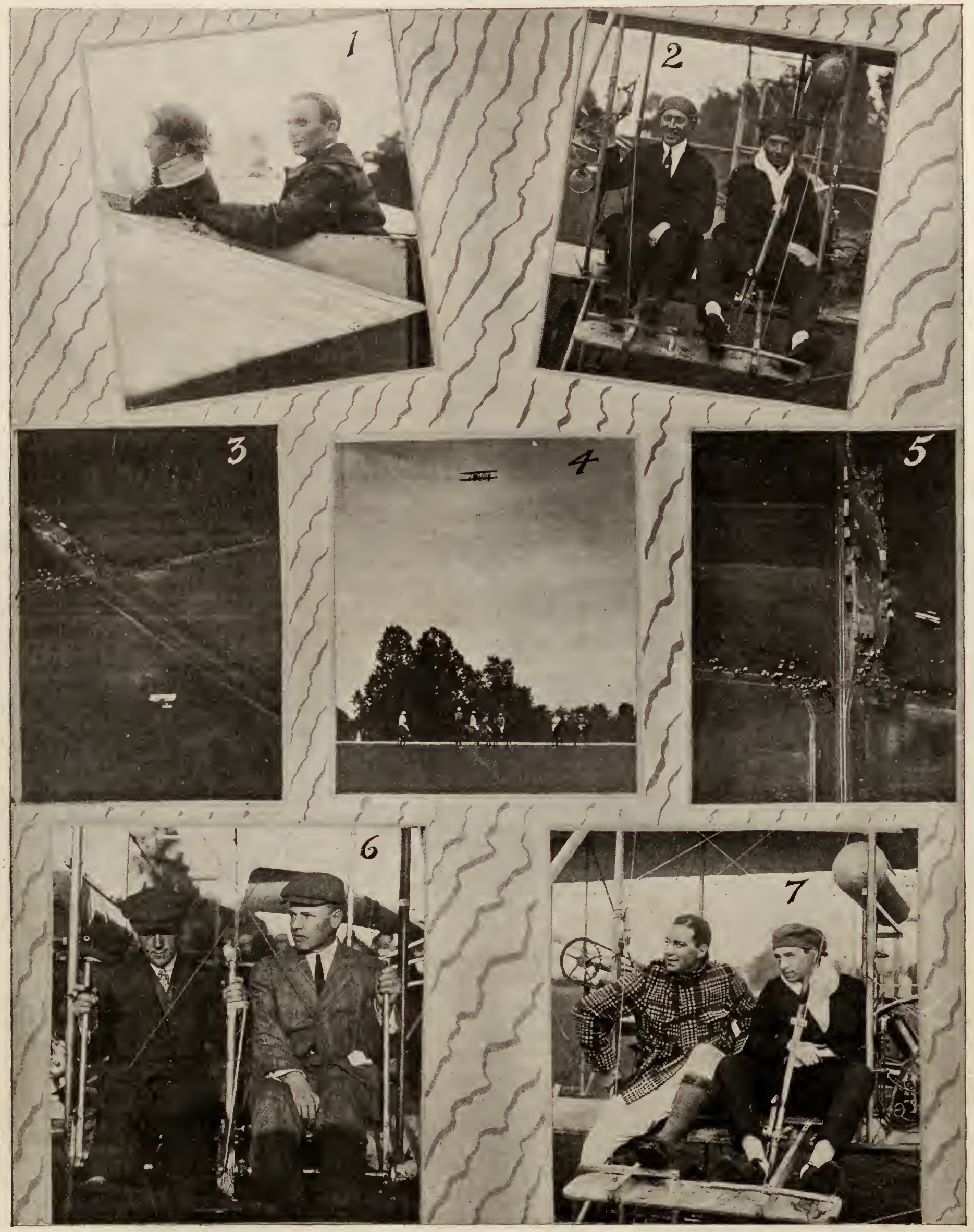
The National Aeronautic Monthly

VOL. IV NOVEMBER, 1911 NO. 1

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Snapshots Taken at World's First Private Exhibition



Photographs, Courtesy of James H. Ha e

(1) Sopwith about to start in his Bleriot with Mr. Colli er as passenger; (2) Rene LaMontagne about to start with Sopwith in the Burgess-Wright; (3) Mr. Collier flying to the hunt with Sopwith, photographed by James Hare, who was flying with A. L. Welsh 1,000 feet above them; (4) Sopwith flying with Mrs. Sabin over the polo field; (5) East Freehold before the start of the hunt, photographed by James H. Hare from Collier's "Laredo," operated by A. L. Welsh; (6) Oliver G. Simmons, Mr. Collier's own aviator, about to start on a flight with A. L. Welsh (on the left); (7) Devereux Milburn making ready to fly with Sopwith.

R. J. Collier Holds World's First Private Exhibition

Four Thousand Guests Watch Aviators Fly at "Rest Hill"

By the Editor

TO Mr. Robert J. Collier, future aviation history must accord the honor of having been the first to hold a private aeroplane exhibition at his own aerodrome. It must also make note of the fact that this generous sportsman introduced to the world the fashion of an "M. F. H." riding to his hunt in an aeroplane. Many of Mr. Collier's personal friends will tell that they took their first aerial joy-rides October 14, 1911, from the aerodrome at "Rest Hill." Then, too, many of the residents of Monmouth County, N. J., will record that they saw aeroplanes in flight for the first time when Simmons, Sopwith and Welsh soared high in the air over Wickatunk.

The first rays of the sun had scarcely lighted the hilltops of Monmouth County, on Saturday, October 14, when the countryside was astir, preparing for the events that were to inaugurate the house-warming, of Mr. Collier's new country residence, "Rest Hill."

The millions of jewels that adorned the autumn foliage of the hills and bedecked the verdant slopes below, still glistened in the sunlight when the big white biplane, "Collier's 'Laredo,'" swept like a mighty bird across the aviation field and soared in the upper currents above the polo grounds. Higher and higher it climbed, banking and turning with the grace of an eagle and the ease of a condor, until it seemed to be a stationary object in the sky.

The dwellers in the valley below watched this man-made occupant of the aerial realm as it loomed larger and larger on the horizon, and their wonder grew. Soon the whirring of the propellors could be heard, then it passed directly overhead, swept in a majestic glide over the big white house on the hill and settled easily and safely in the field in the vale below. Thus did Oliver G. Simmons, Mr. Collier's own aviator, inaugurate with a thirty-minute flight, a day unique in the history of aviation. Meanwhile the countryside was gasping, "It's an a-reo-plain," and every means of locomotion at their disposal was drawn into service to reach the spot where the "a-reo-plain" had descended.

T. O. M. Sopwith had arrived the night before with three mechanics, a Burgess-Wright biplane and a Bleriot monoplane. Also there was present A. L. Welsh, the well-known Wright aviator, sans mechanics and sans aeroplane. The dilemma of Welsh was easily remedied however, by placing at his disposal the Wright biplane owned by Mr. Collier. Welsh said that the engine in his biplane had sclerosis of the spark-plugs and it was not deemed wise to move it in this condition.

By twelve o'clock more than a thousand guests had arrived by special train and automobiles and shortly after this hour, the "Laredo" took the air from the aviation field. Welsh was at the controls, while James H. Hare,



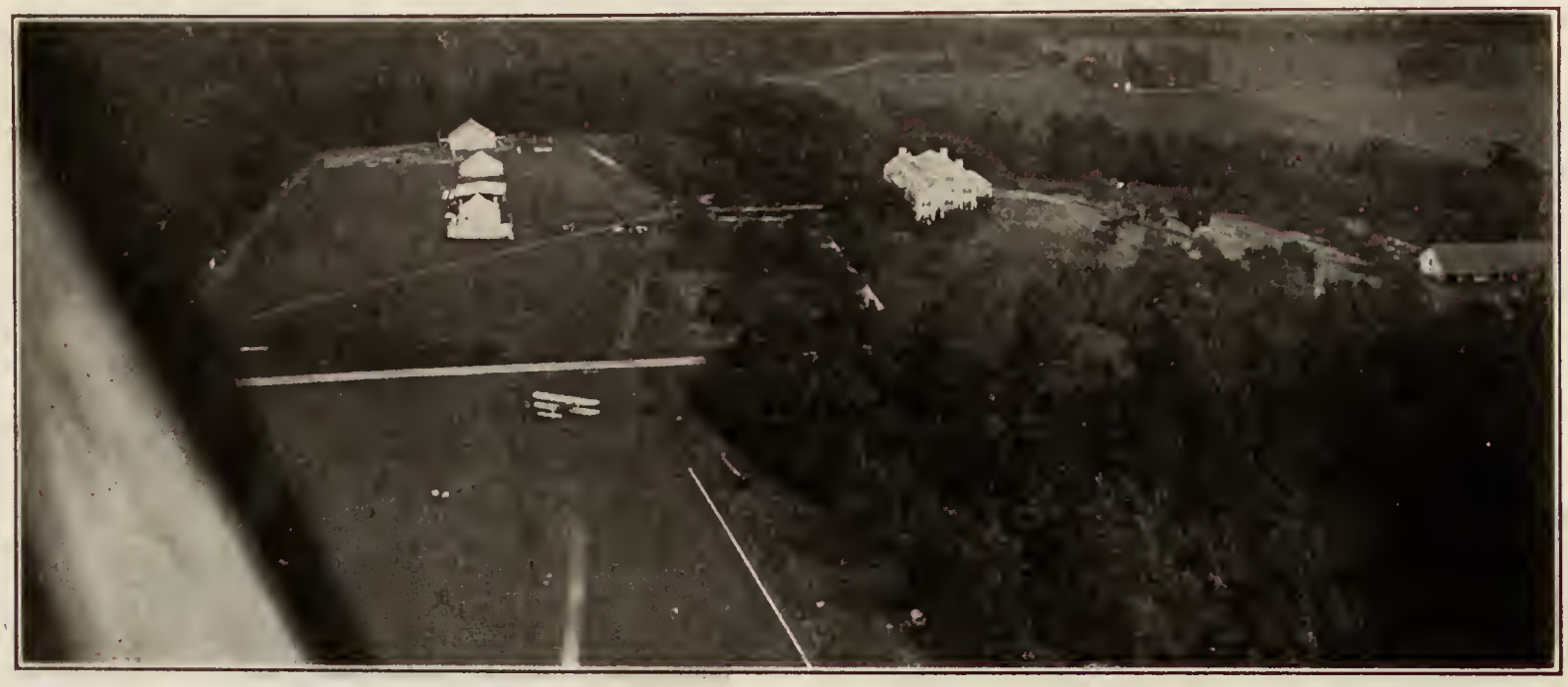
Mr. R. J. Collier at the Start of the Hunt

the famous photographer, who has had a thousand thrilling escapes from death, accompanied him as a passenger. Several moments later, Mr. Robert Collier, dressed for the hunt, climbed into the seat of Sopwith's Burgess-Wright biplane and off they soared for East Freehold, N. J., the starting point of the hunt. Meanwhile, Welsh circled above them while Mr. Hare photographed this first flight of an "M. F. H." on his way to the start of the hunt.

Ten minutes later Mr. Collier and Sopwith had descended by the little station at East Freehold and the hunt began immediately. Welsh and his passenger did not land, but circled the field and then when the hounds were loosed, followed the progress of the hunt. Not before in the history of the world had such an event taken place.

Meanwhile Sopwith tuned up his Gnome-engined biplane and with Oliver G. Simmons as a passenger, started back to "Rest Hill," where they landed ten minutes later.

The whirring of the propellers and the noise of the engine startled the horses so badly, that it was necessary for Welsh and Mr. Hare to keep at an altitude of about 1500 feet to prevent the hunt from being disrupted by the horses throwing their riders or galloping off in any direction to escape the big bird in the sky which seemed to terrify them. The intense cold at this altitude soon benumbed Mr. Hare, who had not protected himself against



Photo, Courtesy of James H. Hare

Photograph taken from an Aeroplane by James H. Hare, showing "Rest Hill," a portion of the Polo Field, Sopwith's Biplane, the Aviation Field and the residence of Mr. Collier. A skid and a portion of a stabilizing plane may be noticed on the left

it, so that after fifty-five minutes of following the hounds, Welsh decided to land his passenger.

It was nearly two o'clock when the hunt terminated at the end of the polo field and by that time Mr. Hare was quite thawed out and was on the spot, making exposures of the ending of a hunt original in the annals of the sport.

Luncheon followed the finish of the hunt and more than four thousand persons enjoyed Mr. Collier's hospitality in the four big tents erected on the aviation field for that purpose.

Soon after, the polo game was announced and a battle royal between Wickatunk and Rumson followed. The line-up for Wickatunk was: W. A. Hazard, R. J. Collier, Rene La Montagne and H. S. Burden. Rumson had for its defenders, W. S. Jones, J. A. Rawlins, J. E. Cowdin and A. Jones. H. L. Herbert acted as referee.

Throughout the game, the aeroplanes were circling the polo field with Mr. Collier's guests as passengers and after the game had ended and until darkness flung its cloak over "Rest Hill," this continued. Among those who made flights with Sopwith and Welsh in the biplanes were: Mrs. Sabin, Miss Katherine Jones, J. A. Rawlins, Walter Damrosch and Richard Harding Davis. Sopwith took his Bleriot out for a flight but found the gasoline feed-pipe so badly bent that he refused to fly it until this was straightened.

During the evening the members of the house-party attended the house-warming dinner in their honor. Later those who could not be accommodated in the big house were sent to Wickatunk to spend the night in Mr. Collier's private car "Sunset."

It had been a strenuous day for those who had the arrangements of the affair in charge and Mr. Charles E. Miner, Mr. Collier's secretary, was one of the weariest of all. "Nothing to do 'til tomorrow," he murmured as he locked the door of his stateroom.

In deep contrast with the beautiful day that had passed, Sunday dawned with a threatening horizon. However there was but little wind and by ten o'clock the propellers of both biplanes were whirring and Mr. Collier was seated with Sopwith, while Richard Harding Davis climbed in beside Welsh. A minute later both machines were in the air headed for Red Bank, N. J. Their destination was the race-track of Mr. L. S. Thompson, near that place, and after a fifteen-minute flight both machines came down safely within the enclosure. Just then a heavy rain set in and the passengers decided to return to "Rest Hill" in automobiles. After a long wait the downpour ceased and Sopwith taking advantage of the opportunity, immediately started for "Rest Hill." Welsh, carrying O. G. Simmons, started soon afterwards, but not soon enough to avoid a heavy storm which they ran into near Wickatunk and which caused them to land at "Rest Hill" soaked through.

In the afternoon, when the skies cleared somewhat, passenger-carrying began. Welsh carried a number of passengers in his biplane, while Sopwith brought out his Bleriot. Among those who again ascended were Mr. Collier, Richard Harding Davis, and Walter Damrosch. Those who took their initial trips were Devereux Milburn, Rene La Montagne, Harry Whitney, Payne Whitney, Edgar Freeman and Edward Smith.

Monday morning Sopwith was up early and had his Bleriot out and he and O. G. Simmons made the first flight of the day. Mr. Collier then climbed into the Bleriot and flew with Sopwith to L. S. Thompson's place again and after a short time returned with Sopwith in the monoplane. Once more Richard Harding Davis was in line for another aerial trip and he and Sopwith made another short flight. Toward noon the wind began to rough up and Sopwith decided not to take any more chances with his Bleriot and as his Burgess-Wright was being dismantled, his flying at the first private aeroplane exhibition was through.

(*Continued on pages 27 and 28*)

Eugene Ely and Cromwell Dixon Have Fatal Falls

ANOTHER well-known and famous American aviator has followed Moisant, Hoxsey and the Johnstones down "the path of Glory." Eugene Ely, whose flights in three years are records of many achievements, fell to his death at Macon, Georgia, on October 19. After many months of flying, during which he was regarded as one of the most cautious of aviators, Ely within the last several months seemed to have become possessed with a spirit of daring that foretold the end that was to come. The cause of this change is attributed by several well-known authorities, to the reckless flying of other aviators whose feats he sought to imitate. Just so surely as Ely has paid the price, so it is certain that those others who indulge in daring glides from great heights and needless reckless flying will meet the same fate.

Eugene Burton Ely met his death at the State Fair Grounds, at Macon, Georgia, at about 3:30 P. M., while, according to reports, he was attempting a "spectacular dip." He had circled the aerodrome once and in attempting to glide and then bring the machine up again, it is thought that he misjudged the distance. It is said that he was not more than 100 feet from the ground when he made the attempt and that the descent of the machine was almost perpendicular. He attempted to jump from the machine, but the force of the fall was too great and he was picked up with his neck broken, and eleven minutes after the accident happened the end had come. Ely was conscious only long enough to whisper, "I lost control. I know I am going to die."

A most outrageous feature of the sad affair was the action of hundreds of spectators who fought off the police and, according to reports, secured as souvenirs, the collar, tie and gloves of the dead aviator.

Eugene Ely first came into international prominence by his attempt, on October 9, 1910, to fly from Chicago to New York. His next famous flight was that from the deck of the cruiser "Birmingham," lying in Hampton Roads. This flight was made in November of the same year, under most trying conditions. A driving rain had set in and a heavy fog hung over the water and land, but despite this fact, Ely flew over Hampton Roads over a ten miles course and landed safely on the shore.

In January, 1911, Ely flew from Selfridge Field, near San Francisco, thirteen miles over the harbor and landed easily and safely on the deck of the cruiser "Pennsylvania." After a visit of an hour he arose from the deck of the cruiser and flew back to the aviation field. The accomplishment of this feat excited comment throughout the world. The wonder of it was lost on one man, and he was Ely.

During the meet at Nassau Boulevard, he was flying at Canton, Ohio, and received a fall that bruised his body and scratched his face badly. His last appearance was at Nassau Boulevard, Long Island, where he flew during the first and last days of the meet.

EXHIBITION flying claimed another victim on October 2, when Cromwell Dixon, operating a Curtiss biplane fell one hundred feet to his death at a State Fair at Spokane, Washington. Dixon was but nineteen years old and, on September 30, had flown across the Rocky Mountains at an altitude of 7,100 feet. He was the first aviator to accomplish this flight.

Before attempting a flight on the day that he fell to death, Dixon had found it difficult to adjust his engine, so that it would run properly. However, after some work, he climbed into his machine and after the propeller had been started, gave the word to "let go." The wind was blowing in treacherous gusts, but despite this fact the aviator ascended.

The spectators could see that Dixon was having trouble with the dangerous air-eddies that continually tilted his biplane in a thrilling manner. Dixon stuck pluckily to his attempt to ascend and was making progress when it was seen that a gust had turned the machine almost on its side. The machine began to drop. As the aeroplane began to slide earthward, people could see that Dixon was only kept in the machine by the restraining straps.

The aviator struggled to save himself and when only fifty feet from the ground, it looked as if he would be successful. A moment later the boy was heard to cry, "Here I go!" and his mechanic, who was standing almost directly beneath him, had scarcely time to jump from the spot before Dixon and the machine crashed to earth.

When Dixon was separated from the wreckage it was found that little could be done. He was taken to the emergency hospital, where he died an hour later. It was found that his skull had been fractured and the collar-bone and right leg broken. The many accidents that have occurred at State Fairs has stirred the Northwestern States and there is talk of stringent legislation regarding exhibition flying.

Cromwell Dixon was born in San Francisco on July 9, 1892. He saw Captain "Tom" Baldwin fly a dirigible balloon at the World's Fair at St. Louis, and from that time he was absorbed with the desire to become an aerial pilot. His first craft was a dirigible balloon called a "sky-cycle." Its motive power was furnished by a bicycle pedal arrangement, which drove a propeller. The envelope was thirty feet long and eleven feet wide, and in this crude airship Dixon made many flights. Later he attached a motor to the propeller and became quite proficient as a dirigible pilot.

Dixon recently enrolled at the Curtiss School of Aviation at Nassau Boulevard. Here, on August 31, he won his pilot's license.

On September 30, Dixon soared over the Rockies and on his return was awarded a purse said to be $10,000. The flight is thus far without parallel.

Cromwell Dixon is survived by a mother and a sister.

Largest Dirigible Balloon in the World, Wrecked

"Mayfly" Cost British Government $400,000

THE largest dirigible balloon in the world, the British Naval Airship No. 1, was wrecked on September 24, while preparations were being made for its first flight. The new dirigible was built for the British Government at a cost said to be more than $400,000. The admiralty had accepted the airship only two days before, on September 22.

The "Mayfly," as the dirigible was sometimes known, left its shed on May 22, but it was found to be too heavy to fly. It was sent back to the shed four days later and after much work had been done upon it, it was finally accepted by the admiralty.

The aerial dreadnaught had been docked at Barrow-in-Furness and it was intended that a trial flight should be made in Morecambe Bay on September 22, the day it was accepted. There was a high wind blowing on that date and the trial was postponed until the following day which also dawned equally unfavorable for flying.

During the night of September 23, the wind moderated and at 6 A. M., on September 24, arrangements began for the launching of the dirigible. A successful flight was anticipated and all hands worked enthusiastically to get the airship from its shed.

After numerous delays, the stern of the dirigible emerged from the shed and everything seemed to be in excellent shape. As the airship was gradually drawn clear of the shed, an attempt was made to turn her nose toward her mooring post in the dock. No sooner had the bow begun to veer than the airship heeled over. She righted herself but developed a list and the whole structure trembled. A swelling appeared in one of the gas-bags, there were seventeen separate ones in the airship, and immediately afterwards there was a sharp crackling sound heard near the rear gondola. The rupture, which began in the seventh gas-bag, quickly extended to the eighth and ninth. Already the center portion was beginning to look like the battered bellows of a concertina.

Captain Sueter, Chief Inspector of Aeronautics, shouted his commands through a megaphone and a rope was passed from the after-gondola to the shore and made fast to prevent the vessel drifting or flying aloft with the crew in the after-gondola. The rope snapped however, and the after-end drifted out, causing two other gas-bags to burst.

The officer and crew in the after-gondola stood at their posts, but the after-fabric began to settle down and it was feared that the gondola would be submerged. The men plunged into the water and swam either to the shore or to boats in the vicinity. The weight of the nacelle which carried a 200-h. p. engine began to drag the airship down, but the inner covering of silk held. A rope was made fast by this means and the drifting was stopped.

In the meantime the break in the center had become more serious and all the gas-bags from the seventh to the fifteenth were ripped. The dirigible was a mass of torn silk and crumpled framework. The airship was later conveyed to its shed and further damaged in the operation.

This dirigible was the largest in the world and carried 706,330 cubic feet of gas, a crew of two officers and six men, with living and sleeping quarters, two eight-cylinder, 100-200-h. p. motors and was stated to be capable of a speed of forty-five miles an hour. The lifting capacity was reckoned at twenty-one tons.

Model Department Queries

PHILADELPHIA, PA.

(1) Which is the best paper covering for a speed model? is paper advisable?
(2) Which is the best cloth covering? is cloth the best?
(3) Do you advise an all wire frame with a wooden motor stick for a speed model?
(4) Do you advise a solid or laminated propeller for speed?

N. C.

1. A form of Japanese commercial paper is about the best. If you will send to a paper manufacturer for samples you will easily be able to select the toughest and lightest. I prefer China silk treated with a coating solution to paper as I consider it the best.

2. Silk causes less resistance than the coarser cotton fabrics therefore to my mind it is most desirable. Silk will also give when it receives a shock while paper will puncture easily.

3. An all wire frame is excellent as it will hold its shape very well and is also very elastic. I do not advise its use in a very large model as it requires too much bracing.

4. There is no difference in the pulling efficiency of a solid or a laminated propeller. Lamination is merely for purpose of securing as much strength as possible. I would recommend a solid propeller if the machine has a protecting landing gear as it is less expensive on the other hand if no landing gear is used a laminated propeller would prove stronger.

BROOKLINE, MASS.

(1) What is the piece in the front of the machine made of?
(2) How is the main plane held down?

T. E. B.

1. The buffer is made of rattan.

2. The main plane is wrapped with silk to the frame and coated with glue.

Note—Juniors kindly address all communications to FLY intended for me. If you wish the inquiry to be answered in the December number try to make the letter reach me before the 15th of this month otherwise it will be carried into the next issue.

English Aviators Feature Long Island Meet

Lieutenant Milling Makes World's Record

New Records Established at Nassau Boulevard

World's Record.

September 26.	Duration with two passengers, Lieut. Milling,	1:54; 42 3/5

American Records.

September 30.	Duration by woman pilot, Mlle. Helene Dutrieu,	1:05; 50
September 30.	Speed with a passenger, C. Grahame-White, 10 kilom.,	0:12; 26 3/5
" "	" " " " " 20 "	0:06; 13 2/5
" "	" " " " " 30 "	0:18; 42
" "	" " " " " 40 "	0:24; 49 4/5
" "	" " " " " 50 "	0:31; 01 3/5
September 30.	Distance covered in given time, C. Grahame-White, 15 miles,	15 minutes
" "	" " " " " 30 "	30 "

WHILE the meet recently conducted by the Aero Club of New York, and held at Nassau Boulevard, L. I., September 23 to October 2, will not become famous either for its brilliancy or management, it can be referred to as an exhibition worthy of encouragment and one that should have been attended with greater financial success. There were many whose names did not appear on the official program who had much to do with the success that the tournament enjoyed. There are still more whose names appeared on the program, who did nothing more than wear their brassards and appear once—perhaps twice—at the meet.

Hon. Timothy L. Woodruff, while not a licensed pilot, is said to have made new records for altitude and duration almost every day of the meet. Of course these will not be recognized by the Aero Club of America, but then there must have been some satisfaction in the making of them. Be it said that the Hon. T. L. Woodruff was Chairman of the Joint Grounds Committee of the Aero Club of America, and the Aero Club of New York. He was also Chairman of the Finance Committee and this position certainly entitled him to "get up in the air" during flying hours without a license.

When the aviators were not pestering the Chairman with protests regarding guarantee and prize money, Bishop Burgess and his confreres were leaving no stone unturned to prevent Sunday flying. The result was that the Honorable Woodruff was ruffled most of the time. Then an occasional glance at the attendance did not tend to brighten the horizon of the Chairman of the Finance Committee. However it should be said in all justice that those who journeyed down to Nassau Boulevard on days when there was flying, received their money's worth. Everybody might have gone a great distance farther and seen less for more money. The Committee that secured these aviators made a clean sweep of it, the only thing to be regretted is that there were not more of them present at the same time.

The Army and Navy aviators were there in force and made a splendid showing. Captain Beck, Lieutenant Arnold, Lieutenant Ellyson and Lieutenant Milling were present during the entire meet and their skill compared very favorably with that of their more seasoned competitors.

Mlle. Dutrieu, holder of the women's record for distance and duration, was imported for the meet at a cost said to be $2,500; $500 was for expenses and $2,000 guarantee. When so inclined the Mademoiselle would have her Farman wheeled from the shed and off she would go. While there was nothing thrilling about her flights she flew very steadily and generally gave the audience plenty of time to watch her. As there was no prize on the program for her, the management decided to put up a gold and platinum purse for her if she would go out for duration. The petite Mlle. Dutrieu soon became a favorite with the spectators and the appearance of her machine was the sign for a general ovation which was redoubled in enthusiasm when she landed. Her shed was the one spot that everyone seemed to make for and often while waiting for her mechanicians to get the Farman in shape for her, she would climb into her seat, rest her elbows on her knees and her chin on her hands and gaze over the crowd before her with a most bored expression.

A feature of the meet were the flights of the Deperdussin monoplanes brought to this country by George Dyott and Captain Patrick Hamilton. A single-seated and a passenger-carrying machine are the first monoplanes of this type to be flown in America. Dyott flies very well and when in the air the machine bears only a slight resemblance to the Antoinette. The fusilage of the machine is covered as in the Nieuport, but it is laced instead of being fastened down as is the case with the Nieuport. The passenger-carrying type was too large to be kept in the sheds at Nassau Boulevard and so was left at Belmont Park. Dyott flew both machines during

the meet. The single-seater is equipped with a 3-cylinder Anzani while the passenger-carrying monoplane has a 5-cylinder Anzani in it.

But when it comes to monoplanes, Grahame-White is the person who is able to demonstrate that he has the machine. When it came to racing, the Nieuport equipped with the lanky Englishman was the real speed machine. It simply was a shame for him to have to take the machine out of the shed to prove it. The fact that there was second and third money in the monoplane speed races is alone responsible for the fact that he had competitors. The Nieuport is not pleasing to the eye while in flight or at rest for that matter, but the velocity that can be attained with it overcomes any aesthetic objections.

Miss Harriet Quimby and Miss Matilde Moisant appeared on several occasions and made flights in the Moisant monoplanes. However, it was noticed that the races scheduled for the women fliers did not take place and the matter of supremacy is still unsettled.

One fatality marked the meet. This occurred on September 25. Dr. Clarke who had been learning to operate a monoplane but who had not yet secured his license, took out Ovington's Queen monoplane just as the day was coming to a close and fell 200 feet to his death. Dr. Clarke had been practicing with an Anzani engined monoplane and on this occasion took out Ovington's machine equipped with a more powerful, as well as a rotary motor. The cause of the accident is said to be due to the aviator's inexperience which allowed him to attempt a right ascending turn in a machine equipped with a rotary motor.



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Mlle Helen Dutrieu

Aside from the very fast Nieuport, Grahame-White also had with him his Gnome-engined Baby bi-plane which seemed quite fast. When he was so inclined, he took the biplane out and went off on aerial joy-rides, swooping over the sheds and spectators in a way that was apt to cause nervous prostration.

Captain "Tom" Baldwin was very much in evidence at the meet, and while his "Red Devil" was not always available for flying, when it did fly, with Lee Hammond at the controls, it quite outclassed its competitors in speed. Miss Blanche Scott, who also flies a "Red Devil," appeared on several occasions in her aviation suit to pose for photographers.

On Saturday, September 23, scheduled as Army and Navy day, this International Meet opened and while the weather conditions were not ideal, there was enough flying and sufficient protesting to add warmth to the occasion. The first race was announced as a passenger-carrying event for biplanes. Harry Atwood took along A. Leo Stevens in his Burgess-Wright, Tom Sopwith agreed upon Henry Englander to go with him, Lieutenant Milling carried Dr. J. C. Redding and George Beatty had Wilbur Kimball for his companion. Lieutenant Arnold was late and so could not start while Grahame-White



The First United States Aerial Postman
Mr. A. H. Bartsch handing Earle Ovington the first sack of mail

would not play because the judges would not start the race against the wind.

The race was ten miles or eight laps of the course without stop. George Beatty finished in 16:23 2/5, Sopwith followed in 16:34 3/5, while Lieutenant Milling came third with 19:19 2/5. The prizes were, $600, $300, and $100, respectively.

The second event was booked under the label of "Aerial Scouting Contest." Early in the afternoon Lieutenant Fickle had taken a detachment of twenty men from the Twenty-ninth Infantry and marched them off somewhere to the eastward. The game was for the aviators to locate them. Entered in this event were Lieutenant Ellyson of the Navy, Lieutenant Milling of the Army, Lieutenant Arnold of the Army, George Beatty, Tom Sopwith and Harry Atwood.

An hour elapsed before Beatty returned to the field and announced that the job was too much for him and he guessed he would pass it by. Soon afterwards Sopwith appeared on the horizon and after he had landed, announced to General Grant, to whom the aviators were ordered to report, that he had seen the soldiers in an open lot about half a mile west of Garden City. There was no decision given at the time as Lieutenant Ellyson claimed that he had dropped his message on the starting line and that therefore he had communicated with General Grant quicker than his competitors.

"Communication From Land to Air Forces," was the title of the next performance. Earlier in the day, the management had sent up a number of small balloons with messages attached to them, and the game was to get up in the air and grab one of these. Sopwith, Atwood and Beatty all entered and Atwood was the first one to land with one of the coveted packets, but again the judges failed to announce a victor.

The cross-country race for women pilots consisted of a fifteen minute flight by Miss Harriet Quimby.

The inauguration of the first aerial mail service in this country was the next event and at 5.05 P. M., Earle Ovington set out for Mineola with a bag of United States mail resting on his knees. There were in the bag 640 letters and 1280 postal cards. Mr. A. H. Bartsch, Advertising Manager for the Bosch Magneto Company, had the honor of handing over to Ovington the first bag of United States mail that was carried by aeroplane in this country.

The distance to Mineola is about 5½ miles and Ovington made the distance in 6 minutes. Postmaster William McCarthy, of Mineola, was stationed in an open field to receive the bag which was dropped from an altitude of about 500 feet. He grabbed it, and took it to the postoffice where it underwent the usual postal process.

Postmaster-General Hitchcock arranged for a special municipal post-office which was erected in the center of the aviation field and there were twenty regulation boxes and two sub-stations scattered about the admission field.

The entries in the cross-country race for bi-planes consisted of Lieutenant Milling, Sopwith, Grahame-White, Ely and McCurdy. Owing to a general disagreement at the finish, the judges again deferred decision.

On Sunday, September 24, two hours before the meet was to open, Sheriff deMott, of Nassau County, accompanied by a deputy, walked on the field and announced to Mr. Woodruff that the social service committee of the Episcopal diocese of Long Island had written to the Sheriff of Nassau County, and demanded that he stop all flights on Sunday for prizes. After a short conference, the megaphone man was heard to announce that all flights for prizes would be called off and that there would be merely exhibitions. For a moment

about 20,000 spectators were puzzled as to whether to ask for their money back or not, but they evidently had faith in the Chairman of the Finance Committee to untangle the affair for they stayed and incidentally there was flying.

The event that the crowd liked best was a relay race between two teams consisting of a monoplane and biplane. Sopwith was paired with Grahame-White while Ovington had Milling for a partner. Sopwith was first away in his Bleriot and after making his four laps descended and jumped from his machine, running to hand the message to his partner, Grahame-White who was waiting in his Baby biplane. He covered the seventy-five yards intervening in short order and White was off without delay. This team won the prize. The elapsed times for the eight miles, including that used by Grahame-White in running with the message to the judges' stand was 13 minutes and 15 seconds.

Miss Matilde Moisant in a Moisant monoplane was the only woman flier to take the air and she received plenty of cheers from the crowd.

Earle L. Ovington secured the honor of writing what is probably the first letter ever inscribed in an aeroplane. He had three newspaper men sign a blank sheet of paper so that no one could accuse him of taking up a written letter. He then went aloft and a few minutes later a note to Mr. Woodruff floated down.

There was so much mail on Sunday that Sopwith also flew to Mineola to carry one of the heavy sacks.

The cross-country race for monoplanes went to Grahame-White who covered the seventeen-mile course in 1 minute, 5 2/5 seconds.

Monday, September 25, was scheduled as "Ladies' Day," but there were few members of that sex in attendance and not more than 2,000 altogether.

Grahame-White was first in the speed race, covering the ten miles in 9 minutes and 58 seconds. The Nieuport gave the first exhibition of mile-a-minute flying seen at the meet..

Tom Sopwith won the bomb-throwing contest by averaging 20 feet 6½ inches from the mark in four attempts. George Beatty who carried a woman, Miss Genevieve O'Hagen aloft, secured second place, his passenger averaging 33 feet, 3½ inches, beating out Lieutenant Milling's masculine bomb-thrower by more than 2 feet.

Lieutenant Ellyson secured first money in the cross-country race for biplanes covering the twenty miles in 21 minutes, 5 4/5 seconds. Lee Hammond in a Baldwin biplane finished two minutes later, while Captain Beck, Grahame-White and Lieutenant Arnold followed in the order named.

A new world's record for an aviator and two passengers was created by Lieutenant de Witt Milling on September 26, when he flew continuously for 1 hour, 54



Photo by Paul Thompson

Lieut. T. de Witt Milling

minutes and 42 3-5 seconds. This brought him the $1,000 prize offered by the Hotel Knickerbocker. This achievement of the young army flier brings new laurels into the camp of the Wright Brothers. The flight hardly became a matter of interest with the spectators until it was announced that the flier had broken the American record. It was then recalled that the Knickerbocker prize called for a flight of 100 minutes and when this was achieved there was a tooting of automobile horns and cheering by the crowds. A flight of this length at that time also broke the world's record and when bombs rose in the air announcing the creation of a new world's mark, Milling and his companions waved a greeting. William Ecke and William Reber accompanied Lieutenant Milling on this record-breaking flight.

Tom Sopwith and Grahame-White almost made a clean sweep of the prizes for the day, winning between them, two first and three second places. Lee Hammond managed to share in the prizes for bomb-throwing by securing second place in the event with an average of 92 feet for four attempts. Tom Sopwith won the event with an average of 21 feet 10½ inches.

The all-star performer on the following day was T. Sopwith, who won the weight-carrying contest and the passenger-changing race.

Lieutenant Arnold started off with Lieutenant Lyons as his live weight. The Lieutenant weighed 221½ pounds and Lieutenant Arnold stayed up only 2 minutes and 40 seconds. Lieutenant Milling next essayed the five-mile course with two passengers, the trio weighing 450½. Their chances of winning were

over in 5 seconds. It remained for Sopwith to try and he showed his cleverness by picking out E. Burd Grubb, who weighed 159 pounds, making the combined live weight 310½ pounds. Sopwith got away with the money in 9 minutes, 7 3/5 seconds. Second and third places were not awarded.

Lieutenants Arnold and Milling were again on deck to compete against Sopwith in the passenger-changing race. This race called for two circuits of the pylons and a change of passengers, the procedure to be repeated twice. Sopwith covered the course in 13:23 3/5 while Arnold came second with 14:28 4/5 and Milling third with 14:44 4/5. Captain Beck started in his Curtiss but gave up after a circuit of the course.

The wind was steadily rising, and as Mr. A. F. Barnes of the Wright Company stood down by the sheds watching the Burgess-Wrights flying in the contests, he ventured that it was "the (W)right kind of a day for flying." Not one of the monoplanes ventured out and two of the events were postponed.

Tom Sopwith brought the day's events to a close by carrying a letter to Bishop Burgess by aeroplane. The letter was from Mr. Woodruff, and explained at some length his views on Sunday flying. Bishop Burgess did more to keep the aviation meet on the front page of the New York newspapers than all the flying that was done at Nassau Boulevard. If it had not been that the Sunday flying was held in restraint obviously because of the threats of the Bishop, the more suspicious would have been confirmed in the belief that it was a press agent scheme to advertise the meet.

Thursday, the sixth day of the meet, was as pretty a day for flying as an aviator could wish, and be it said that this may have had something to do with the prizes being more evenly distributed than on any previous date. In the passenger-carrying race for biplanes Captain Paul W. Beck won the final heat and also the prize money. The first heat was won by Lee Hammond in a Baldwin biplane in 7:31 2/5 seconds. His passenger was the young model-flying champion, Cecil Peoli. The second heat was won by Lieutenant Milling with Dr. Redding as a passenger, in 10:15 4/5. Captain Beck in a Curtiss, with E. A. Smith as a passenger, in 6:50 1/5. Lieutenant Ellyson, also flying a Curtiss, captured the third heat with Harry Hall as a passenger, in 6:51 3/5. The trial heats were five miles while the final race was a course of ten miles. The finals looked like easy money for Lee Hammond, but both he and Lieutenant Ellyson were forced to drop out and Captain Beck won in 12 minutes and 41 seconds.

The alighting contest was won by Lieutenant Milling, who came to a dead stop 11 feet beyond the line, and incidentally cracked his radiator. When about 20 feet from the line, the biplane struck a mound and jumped 6 feet high, coming down with a severe jolt, which resulted in the mishap. Sopwith was second with 32 feet, 6 inches, while Captain Beck was third with 52 feet.

The last event of the day was a twenty-mile race for monoplanes which Grahame-White captured in 16:22 2/5 seconds, Sopwith was second in a Bleriot, in 17 minutes and 47 seconds. George Dyott, who started in his passenger-carrying Deperdussin did not finish. The management burned red fire for half an hour after dark in hopes that he would find his way back to the field, but it was learned later that he had come down at Belmont Park, and had housed his machine there. It was too big to keep in the sheds at Nassau Boulevard, and so a tent was erected for it. On Friday, when it rained and blew in fitful gales, the tent came down and smashed a Farman type into kindling wood. Dyott remarked later that he was a lucky man. He was!

It was black Friday and there was no flying. However there was plenty of entertainment in New York for those who did not have to keep watch over their machines, and some took advantage of it.

On Saturday, Sam Perkins had his kites out early, but before the thirteen man-carrying kites were brought down out of the sky, Lieutenant Ellyson was out with his Curtiss and was skipping around the field at a fast rate. The wind was making 20 miles an hour, and was tricky, but that did not deter him from getting an early start. Captain Beck was soon with him and for a short time the two had the aerodrome to themselves. However, when the starting bomb was fired the Burgess-Wrights made their appearance, and 10,000 spectators were on hand to witness the events.

The first one was an announcement that the chairman of the Finance Committee had gotten out an injunction against the Sheriff of Nassau County, forbidding him to interfere in any way with the Sunday flying. This was the most interesting event of the day.

True, during the afternoon, eight American records were broken, but then nobody knew it until long after the crowds had left the field. The discovery that they had been broken was the result of an official measurement.

Mlle. Dutrieu, who went out to break the American women's record for duration, stayed aloft for 1 hour, 5 minutes, 50 seconds, and succeeded in taking the honor from Miss Moisant. Miss Harriet Quimby also made her re-appearance at the field after an absence of several days, when she was flying at the Trenton Fair. She flew over to Mineola with long detours and won the cross-country race for women pilots in 39 minutes and 22 seconds. There were no competitors.

Seven of the records were smashed in a single flight by Grahame-White in Nieuport. The original idea was to fly against time for the world's record for distance covered in 15 minutes, and in 30 minutes over a closed circuit. Grahame-White failed by a fraction to equal the world's records, but he broke American

records for monoplane flights with a passenger for 10, 20, 30, 40 and 50 kilometers. Following this he soared aloft as a volunteer participant in an event in which he had not entered, reaching an altitude of 3,000 feet. In this event for passenger-carrying altitude flight Sopwith reached a height of 2,800 feet, while Captain Beck rose to a point determined at 2,500 feet.

The effort of Grahame-White to establish a record for distance in a stated time, resulted in the breaking of the American record by 3 ¾ miles, despite the fact that he carried an unnecessary passenger. He flew at the rate of 62½ miles an hour.

Sopwith won the bomb-throwing contest, again, with an average of 16 feet, 5¾ inches. Lieutenant Milling was second with an average of 28 feet, 6 inches. Lieutenant Ellyson was third, with 32 feet, 9 inches, and Ely was fourth, with 33 feet, 6¼ inches.

It was Ely's first appearance since the beginning of the week, having been filling an engagement in Canton, Ohio. He had a long scar on his cheek which he said he received in his fall of 50 feet at Canton. With his shortened planes he turned in to race Sopwith for the fastest return trip with mail to Mineola, but despite the added speed of the Curtiss, Sopwith's Gnome-engined Wright beat him by 42 2/5 seconds.

Jupiter Pluvius took charge of the meet on Sunday, and did what Bishop Burgess was unable to do. The rain fell and the wind blew and 1,000 spectators had a rather miserable time of it. After some argument in which the English warmly participated, the meet was called off, and Beatty, Captain Beck, Lieutenant Ellyson and Lee Hammond all took the air in the drizzle, while the megaphone men proclaimed the meet off. They flew for about 33 minutes, while several hundred spectators were wondering whether to believe what they heard or what they saw.

Miss Matilde Moisant won the Rodman Wanamaker trophy, offered for the highest altitude made by a woman at the meet. It was 1,414 feet. Some official of the Aero Club of America fastened a superannuated barograph on the monoplane of Miss Quimby, or else she might have had a good chance to win it. The official barograph refused to register, while her own aeronoid showed about 2,800 feet.

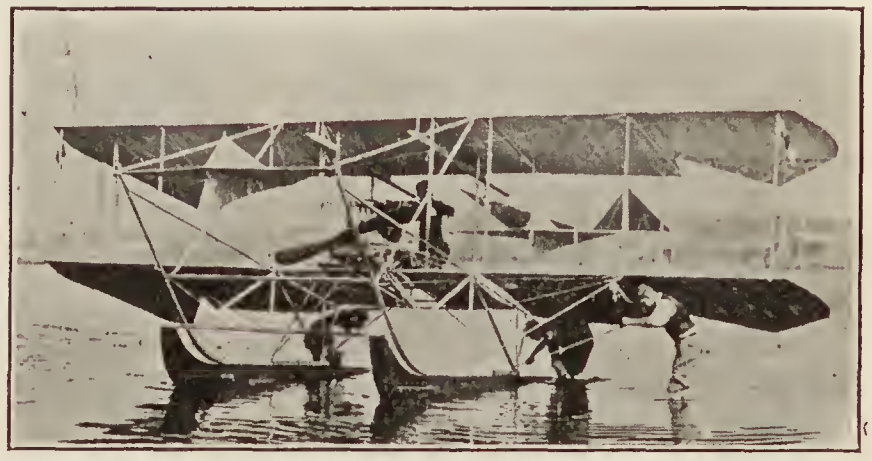
The amount of prize money originally offered was $29,000. Of this amount $17,050 was awarded, and of this $9150 went to Sopwith and Grahame-White.

The individual winnings of the air-men and women are: Sopwith, $5200; Grahame-White, $3950; Lieut. T. De Witt Milling, $2550; Capt. Paul W. Beck, $1150; Lieut. Theodore Ellyson, $1250; George W. Beatty, $750; Eugene Ely, $750; Harriet Quimby, $600; Lee Hammond, $500; Mlle. Dutrieu, $500; Harry N. Atwood, $350, and Lieut. Henry H. Arnold, $300.

The New "Hydro".

By Capt. Hugh Willoughby

I HAVE received notice from the French Patent Office that my patent on the "Double Rudders" has been allowed. The full papers will now be ready in the American Patent Office, in a couple of months. The patent on engine control will be issued about the same time.



The "Pelican

My success with the "Pelican' has been so great, that it is my intention to establish a factory, at Sewall's Point, Florida, this winter, and build duplicates of the "Pelican," putting in the best 50 horse-power engine that can be produced for the work, with the best workmanship, at the average price of a good automobile.

We are looking forward for a big demand from the general public for the "Hydro" in the spring. The moment people realize the fact that it is not necessary to fly more than a few feet from the surface of the water and in fact the best wind *is* near the water. From that moment they are satisfied that it is impossible to have a serious accident. I have seen a "Pelican" in South Florida, soar for a couple of miles within six inches of the surface. If anything goes wrong the machine simply lights in the water as do the aquatic birds, and the aeroplane is converted into a motor-boat, but can be steered (with the aerial rudder), in a way that no motor-boat can imitate, and in point of speed can beat the fastest mitor-boat in the world, even if she has a $10,000 engine.

Drowning is impossible as the displacement of the "Hydroplane boats" will float over 2000 pounds and the water-tight wings themselves another 1000 pounds. The motor-boat can upset, and sink, but the Hydro-aeroplane cannot do so. In running the "Pelican" in Newport harbor lately, I ran through the swell of a ferryboat that would have capsized a rowboat at once. The hydroplanes were submerged, but no water reached the "body planes."

There are thousands of people fond of sports, who would have taken up the aeroplane but for their own fears, or those of their relations. The most timid person will drive a "Hydro" and get more pleasure out of it than he ever did from the automobile or the motor-boat.

Germany Wins the Gordon-Bennet Balloon Race

Storms Prevent Record-Breaking Flights

Estimated Distances of Balloons in International Contest

Name.	Country.	Pilot.	Aide.	Distance in Miles.
Condor III	France	Emile Dubonnet	Pierre Dupont	240
America II	United States	W. F. Assman	J. C. Hulbert	290
Million Population	United States	John Berry	P. McCullough	300
Berlin I	Germany	Lieut. Vogt	Lieut. Schoeller	350
Buckeye	United States	Lieut. F. Lahm	J. H. Wade, Jr.	370
Berlin II	Germany	Hans Gericke	Otto Duncker	470
ESTIMATED DISTANCES OF BALLOONS ENTERED FOR LAHM CUP.				
Topeka II		H. E. Honeywell	W. W. Webb	325
Kansas City II		Frank M. Jacobs	John Watts	450
ALTITUDE ENTRY.				
Pennsylvania I		Arthur T. Atherholt	H. E. Hunnewell	300

THE next International balloon race will be held in Germany. Lieutenant Hans Gericke has at last placed the firm hands of aspiring Germany on the Gordon-Bennett Cup. Fiercely raging storms brought all the balloons down much sooner than was anticipated and some of them were blown back many miles over their course. The Aero Club of America has lost its opportunity to become the permanent possessor of the cup, and they will have to start all over again next year. With two consecutive legs on the coveted trophy, hopes were high that the United States would be able to secure the victory again this year, but heavy storms ruined their chances.

Before favorable winds nine balloons left Kansas City on Thursday, October 5th, competing in three different events. Six were entered in the International contest, and the three American entries were also contestants for the Lahm Cup, together with the Topeka II and the Kansas City II. Arthur T. Atherholt, president of the Aero Club of Pennsylvania, started in the little 35,000 cubic foot club balloon Pennsylvania I to break the American record for altitude.

The balloons had not been up long before heavy winds began to blow, and this, together with hail, snow and rain; drove seven of the balloons to earth before Friday night. The America II was the first to come to earth, landing near Emmettsburg, Iowa, at 1.30 A. M. October 6th; the Pennsylvania I was next to come down, descending near Buffalo Center, Iowa, at 6.20 A. M.; the Topeka II came to earth near Dunnell, Minn., at 8.30 A. M.; Austin, Minn., was the locality in which the Berlin I landed at 10 A. M.; the Buckeye landed near Lacrosse, Wis.; the Kansas City II descended at 9.20 A. M. near Kennan, Wis.; the Million Population Club balloon landed near Mason City, Iowa, at 5 P. M.; the Condor III came down near Mingo, Iowa, at 9 P. M., while the winning balloon, Berlin II, landed on Friday morning at 7 A. M. seven miles northeast of Holcombe, Wis.

Emile Dubonnet, pilot of the Condor III, reports that his balloon was as far north as St. Paul, Minn., and that he had been swept out over Lake Michigan.

J. H. Wade, Jr., who was aide to Lieutenant Lahm in the Buckeye, tells of being lost for hours high above the clouds, and then when the balloon was forced near the earth by the heavy rain how they swept over fields, through fences, splashing in great puddles of water, plowing through woods, and just missing farm buildings. Then they finally landed in the midst of the flood district in Wisconsin.

Arthur Atherholt had an experience which excited interest. Because of the small capacity of the balloon and the 13-hour trip in which 300 miles were covered comment was aroused among aeronauts. After drifting all night high above the clouds, and being tossed about by heavy winds, day dawned and disclosed a stretch of prairie suitable for landing. When an attempt was made to pull the valve cord, it was found that the valve was frozen and the only course left was to use the rip cord. Atherholt states that in operating the cord his hand erred and a dense volume of gas poured out, while the balloon shot downward with terrifying speed. The basket struck the earth with a crash and both men were thrown out, although neither Hunnewell, the aide, nor Atherholt was injured.

The weather conditions that prevailed this year are by far the most discouraging ever encountered during the International race, and especially credit is given to the plucky pilot of the Berlin II for winning out.

FLY MAGAZINE

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By the Way

WITH the publication of the current issue of Fly, the national aeronautic monthly begins the fourth year of its existence. During that time the progress that aviation has made, surpasses the dreams of the most visionary. The aeroplane, hailed as a toy and a plaything a few years ago, is now confronting the world of science with the gravest of problems Some have been overcome, more remain to be conquered. Designers and builders are working day and night, to solve some of the more urgent questions. The pioneers of aviation in America are still as devoted to the accomplishment of the perfection of the heavier-than-air machine as they were on the day of their first success. Meanwhile what about the place of the aeronautic magazine in the history of the growth of aviation? The great interest aroused throughout the country has been accomplished principally through the medium of a magazine that devotes its pages entirely to the progress of aeronatutics. With a sturdy belief in the aeroplane industry the management of the Aero Publishing Company has fought its way through hard and often times discouraging conditions. The result is that today Fly Magazine leads all others in circulation and results to advertisers. Fly! Fly! Fly! Can one ever forget the name? Thousands of subscribers tell us not. Fly is the magazine to advertise in to secure results. Readers! Begin our new year right and secure a year's subscription to Fly without delay. Advertisers! Increase your business by taking space in the columns of Fly at once. The cost of living increases as well as the expenses of the business; there is no time like the present to sign an advertising contract with Fly.

THE first private aviation exhibition in the history of the world was given by Mr. Robert J. Collier during the past month. Four thousand of the neighbors of the surrounding country were present to see, many of them for the first time, an aeroplane in flight. There was nothing but enthusiasm, everybody wanted to "go up." As long as the daylight lasted they did "go up," and all who enjoyed the sensation were eager for more. Richard Harding Davis flew in the twilight and was up at dawn the next day for a ten-mile flight across country.

With twenty such generous enthusiasts as Mr. Collier to promote the science of aviation in this manner the popularity of the aeroplane would be assured. Once the inertia of the mind is overcome the support of the general public is sure to follow. Many people have never seen an aeroplane in flight. More perhaps cannot afford to journey to those places where exhibitions are in progress. Then bring the aeroplane to them, as Mr. Collier has done. Let them see it in all frailness and yet behold the perfect flights of expert aviators. There can be but one result. The people will be with you.

FIGURES show that since the inception of aviation one hundred lives have been lost in the pursuit of fame and money. Many of these lives have been lost in competitive meets and races. In America sixteen men have sacrificed themselves. Some of them have been among the most expert and distinguished aviators in the world, and yet in almost the twinkling of an eye their lives were crushed out. The cry still goes up, "Stop Aviation." Consider for a moment. Is this sensible talk? Is it not just as well to withdraw trains from their schedules when one goes over an embankment and takes with it the lives of men, women and children? Steamship disasters, railroad wrecks and automobile accidents pile up their totals of death and injury by the hundreds, and yet the world passes all this by with a deep drawn sigh of regret and perhaps the comment that such things are bound to happen. This is true. The common hazard of life and death will always be present in every means of transportation, and it is just as true of aerial travel. Yet when one aviator falls to death the nations cry aloud in bitter protest. Aerial navigation is in its infancy and many more lives will be lost before the end is attained, and even then death and disaster will occur from time to time. The perfection of aerial travel will be a boon to humanity. Let us hasten the day and put aside these asinine protests and deprecatory speeches. Aviation is here to stay. Aerial transportation is bound to come. This generation will probably enjoy its benefits.

Table For Calculating Weights of Aeroplane Frame-Work

Thickness

Width	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 3/8"	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2"
1/4"	.00094	.00141	.00188	.00234	.00281	.00328	.00375	.00422	.00469	.00516	.00563	.00609	.00656	.00703	.00750
3/8"	.00141	.00211	.00281	.00352	.00422	.00492	.00563	.00633	.00703	.00733	.00844	.00914	.00984	.0105	.0113
1/2"	.00188	.00281	.00375	.00469	.00563	.00656	.00750	.00844	.00938	.0103	.0113	.0122	.0131	.0141	.0150
5/8"	.00234	.00352	.00469	.00586	.00703	.00820	.00938	.0105	.0117	.0129	.0141	.0152	.0164	.0176	.0188
3/4"	.00281	.00422	.00563	.00703	.00844	.00984	.0113	.0127	.0141	.0155	.0169	.0183	.0197	.0211	.0225
7/8"	.00328	.00492	.00656	.00820	.00984	.0115	.0131	.0148	.0164	.0180	.0197	.0213	.0230	.0246	.0263
1"	.00375	.00563	.00750	.00938	.0113	.0131	.0150	.0169	.0188	.0206	.0225	.0244	.0263	.0281	.0300
1 1/8"	.00422	.00633	.00844	.0105	.0127	.0148	.0169	.0190	.0211	.0232	.0253	.0274	.0295	.0316	.0338
1 1/4"	.00469	.00703	.00938	.0117	.0141	.0164	.0188	.0211	.0234	.0258	.0281	.0305	.0328	.0352	.0375
1 3/8"	.00516	.00733	.0103	.0129	.0155	.0180	.0206	.0232	.0258	.0284	.0309	.0335	.0361	.0387	.0413
1 1/2"	.00563	.00844	.0113	.0141	.0169	.0197	.0225	.0253	.0281	.0309	.0338	.0366	.0394	.0422	.0450
1 5/8"	.00609	.00914	.0122	.0152	.0183	.0213	.0244	.0274	.0305	.0335	.0366	.0396	.0427	.0457	.0488
1 3/4"	.00656	.00984	.0131	.0164	.0197	.0230	.0263	.0295	.0328	.0361	.0394	.0427	.0459	.0492	.0525
1 7/8"	.00703	.0105	.0141	.0176	.0211	.0246	.0281	.0316	.0352	.0387	.0422	.0457	.0492	.0527	.0563
2"	.00750	.0113	.0150	.0188	.0225	.0263	.0300	.0338	.0375	.0413	.0450	.0488	.0525	.0563	.0600
2 1/4"	.00844	.0127	.0169	.0211	.0253	.0295	.0338	.0380	.0422	.0464	.0506	.0548	.0591	.0633	.0675
2 1/2"	.00938	.0141	.0188	.0234	.0281	.0328	.0375	.0422	.0469	.0516	.0563	.0609	.0656	.0703	.0750
2 3/4"	.0103	.0155	.0206	.0258	.0309	.0361	.0413	.0464	.0516	.0567	.0619	.0670	.0722	.0773	.0825
3"	.0113	.0169	.0225	.0281	.0338	.0394	.0450	.0506	.0563	.0619	.0675	.0731	.0788	.0844	.0900
3 1/4"	.0122	.0183	.0244	.0305	.0366	.0427	.0488	.0548	.0609	.0670	.0731	.0792	.0853	.0914	.0975
3 1/2"	.0131	.0197	.0263	.0328	.0394	.0459	.0525	.0591	.0656	.0722	.0788	.0853	.0919	.0984	.105
3 3/4"	.0141	.0211	.0281	.0352	.0422	.0492	.0563	.0633	.0703	.0733	.0844	.0914	.0984	.105	.113
4"	.0150	.0225	.0300	.0375	.0450	.0525	.0600	.0675	.0750	.0825	.0900	.0975	.0105	.113	.120

Calculated By H.L. Prout

This Table Gives The Weight, Per Inch of Length, of Different Sizes of Spruce.
For Ash Multiply By 1.467
For Round or Elliptical Shapes Multiply By .7854
This Table is Computed on The Basis of Spruce = .015# Per Cubic Inch and Ash = .022# Per Cubic Inch.

The Use of a Wood-Weight Table

by Herbert L. Prout

IN designing my own aeroplanes I have found it quite a task to figure out the weights of the various pieces of wood used in construction. Consequently I calculated the above table in the hope that it may prove of value to others engaged in the same work.

Suppose it is desired to find the weight of two engine bearers 1¾ inches x 3½ inches x 30 inches.

Find 1¾ x 3½ in the table and it will be found that their respective columns meet at the figures .0919, which is the weight in pounds of a section 1 inch long. Multiply 30 inches by 2 and the result by .0919, which will give 5.514 or about five and one-half pounds for the weight of the engine bearers. This weight is for spruce, and should the material in question be ash, multiply 5.514 by 1.467, which will give about eight pounds as the weight of the bearers if made of ash.

To find the weight of the oval cross-struts of a Bleriot type truss, say thirty-two pieces, ⅞ inch x 1½ inches, of an average length of 20 inches, or a total of 640 inches. Find the weight per inch of length in the table, which is .0197. This multiplied by 640 gives 12.608 pounds for struts of rectangular cross-section. This multiplied by .7854, the figures for elliptical shapes, gives 9.9 or about 10 pounds total weight for spruce.

The figures given in the table apply to spruce and ash only, as they are most commonly used. However, it may be well to add that white pine is figured about the same as spruce, while the figures given for ash are equivalent to those for walnut. For oak multiply by 2, and for hickory use 2.12.

A Discussion of Systems for Aeronautical Maps

Suitable Mapping of this Country Necessary

By E. Adrian von Muffling

(Concluded from the previous month)

Aside from convenience in handling, the following questions may well be brought up:

What constitutes a good aviator's map?

What is the information most necessary to direct an aeroplane's proper course?

Will any of the maps now generally used suffice?

As to the last question, the answer is an emphatical, No! At least, not beyond the most rudimentary indications of direction. A really efficient map for the aviator's use will have to be especially compiled, and must contain only such information as will be of actual value to him, and nothing else, that may serve only to confuse his mind.

The various indications that an aero map ought to contain may be classed as follows:

1. *Means of communication.* These are very valuable, as they are usually visible from a great height, and their frequency makes the map easily comparable with actual conditions on the ground. The main roads and railroads are especially valuable, as they form the most direct communication between towns. A railroad is for an aviator always a safe thing to follow; so also is a river or canal. Not all roads or waterways should be indicated, however, but only such as are easily recognized and lead to some definite point of reference.

2. *Natural references.* This class includes all existing characteristics of the landscape that lend themselves to easy identification. As an example, I may cite church steeples, factory chimneys, important isolated buildings, lakes and ponds, bridges, important cross-roads, etc. Such references should be indicated on the map by special signs, easily differentiated, and should be out of proportion with the scale of the map, only indicating their approximation thereon. The aviator has very little time at his command and cannot examine his maps very closely. All indications should, therefore, jump at his eyes, so to speak. (An example is given in the accompanying sketch map of the aeroplane district of Long Island.)

3. *Outlines of cities,* with the principal streets therein.

4. *Principal movements of surface.* These are not absolutely essential, but would be effective if they could be used without making the map confusing. The best method is by very thin colored contour lines, and by them an experienced map reader can tell what the character of the country is at a mere glance. The system adopted for the United States Coast Survey Maps is almost ideal in its simplicity and comprehensiveness.

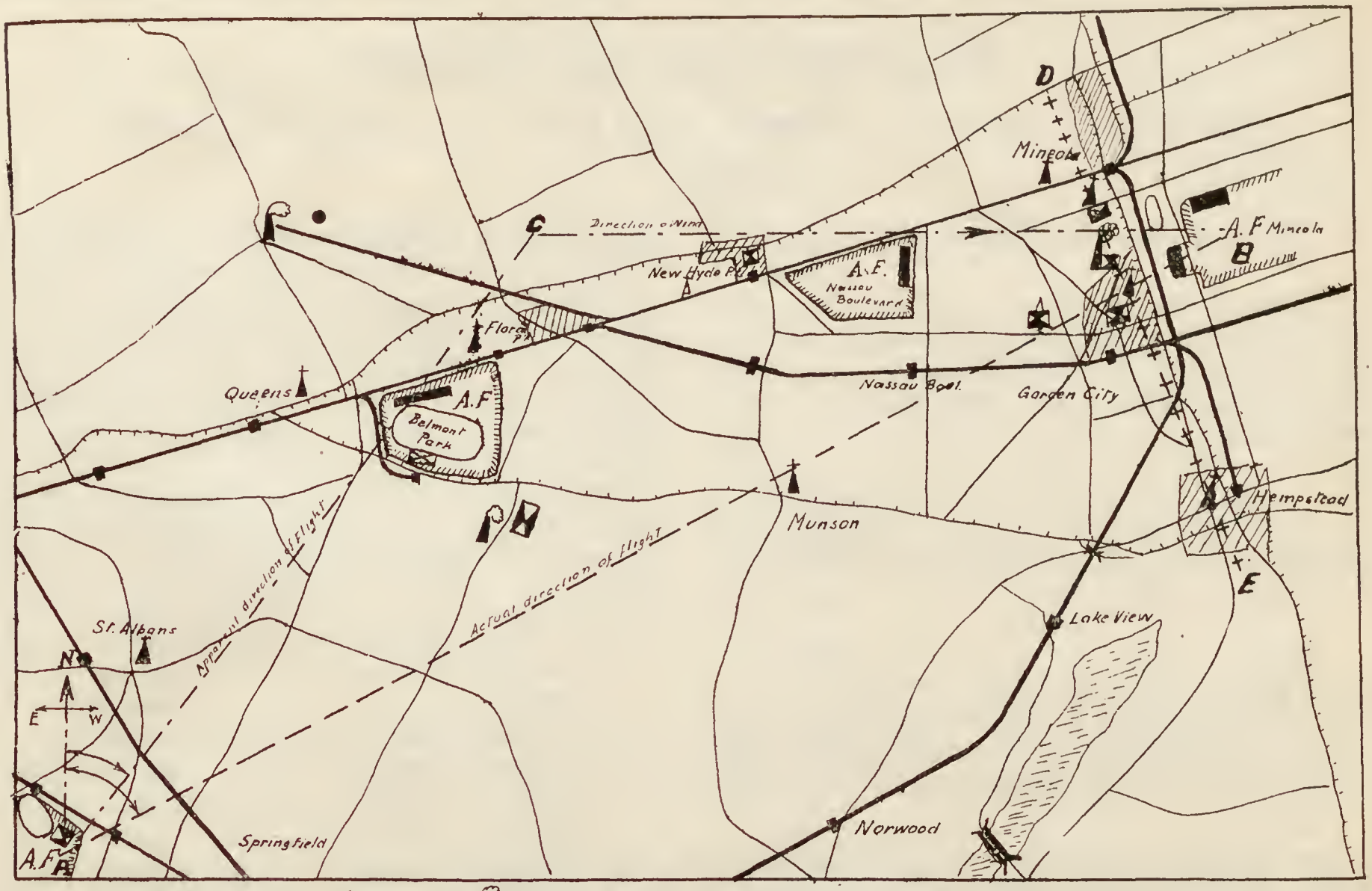
5. *Forests.*. Considerable discrimination is necessary here. It is manifestly impossible to indicate every cluster of trees, yet, on the other hand, in a wooded region some such indication may be invaluable, if only to indicate possible landing spaces.

6. *Aviation fields,* municipal landing spaces, hangars, etc.

7. *Artificial references.* These will not as a rule be necessary, except in a few special cases, as on the top of hills that would otherwise be unrecognizable in mountainous regions.

Assuming the existence of such a map, divided into sheets of suitable size, and mounted on stiff carbboard, its use would be about as follows: Before starting on a long journey the aviator arranges the various sheets, comprising the route to be covered, in their proper order to have them ready when necessary. Having the first map held before him by any suitable means, and having located his approximate direction on the map, he will select some point of reference nearest to his line of flight. After starting he locates that point on the horizon and flies toward it. Upon reaching it, a mere glance at the map will tell him which other reference within sight is to be his next one, and so on. One of the advantages of using special signs instead of numbers is that the former may be read in any position on the map, thus enabling the aviator to keep it always in a correct position with regard to the cardinal points. Thus, no matter what the direction of his machine may be, he will have before him a correct picture of the country beneath, with every reference in its true relative location, and enabling him to select the proper one quickly and unmistakably. When at the end of his sheet, the aviator, having arranged them beforehand, naturally picks up the right one to continue his journey.

A system of mapping the country as suggested above, the writer believes, if adopted and executed, would go a long way towards making aeroplane touring a safe and enjoyable sport. The danger of this system lies in the tendency to overcrowd, and very wise discrimination is imperative in deciding what is to be placed upon, or left out of the map. But, after all, only those points that are really conspicuous and may be seen from a distance need be observed. A town, for instance, of which we know that a railroad branches off from there from the main line, has three church steeples, a power house, and pos-



To Illustrate Method of Flying by Compass

Suppose a flight is to be made between points A and B. The general direction of flight will be the line AB, and NAB will be the angle. If CB represents the direction of the wind, the machine must be headed in the direction AC, its angle being NAC. DE is a base line passing through various references as shown.

sibly an insane asylum on a neighboring hill is more easily recognizable, and is of more practical use as a reference, than any quantity of numbered signs that have to be laboriously sought and verified. The conventional signs need not be more than a dozen at most and will easily be committed to memory. In the accompanying sketch some of these proposed signs are indicated.

As for night flying, it would be looking too far into the future to discuss at the present time. When the time comes for it, that problem will also be solved with satisfaction.

Let me repeat that we have reached the stage at which the need of a suitable map for aviation purposes in the near future is recognized. And with the rapid advance of the "gentle art" what may be an idle dream today will be an actual necessity tomorrow. The question of maps for aviators is going to be a burning question and we should emulate our French brothers in having some one in authority investigate and report on the most suitable system to be found among the many that will be clamoring for adoption.

A Wright Hydro-Aeroplane

AN interesting experiment with the Wright biplane has recently been concluded by Russell and Fred Alger, of Detroit, and Frank Coffyn, the well-known Wright aviator. The Algers are the owners of a Model B Wright machine and desired to fly it from the surface of Lake St. Clare, near which they have their shed and flying field.

A well-known motor-boat designer was called in consultation and he built for them two pontoons, weighing about 40 pounds each. Coffyn assisted in attaching them to the bottom of the skids, and when the machine was placed in the water it was found that the fore and aft balance had been located with exactness.

Coffyn climbed into the machine and had no difficulty in making two flights of less than a quarter of an hour duration. The success of Coffyn in this matter rather upset the common belief that, owing to the low power of the Wright engine and the weight of the Wright biplane, it would be unable to overcome the initial resistance of the water.

The Diary of An Aviator

The Experiences of a Youth Who Knew All About Aviation

By Henry M. Neely

(This Story began in the September issue of FLY)

May 28.

Went all the way across the field. Must have been 50 feet high. Smith says my rear wheels were not off ground at all and Johnson says same thing. Can't understand the jealousies there are in the aviation game.

May 29.

Papers this morning have their usual inaccurate guff. Say I didn't get off the ground once. Speak of my flight as "grass cutting."

May 30.

Tried out machine again. Smashed into fence. Think Johnson swindled me. Machine must be out of order. Something must have happened to it since he flew it and he didn't tell me about it.

June 3.

Fired Smith. Too fresh. Says biplane was in perfect condition on day I smashed into fence. Johnson has signed up with Curtiss aviators. Queer. I didn't think he was much of a flyer. Best I ever saw him do was inside of fifty miles.

June 4.

I'm beginning to think every man in the aviation game is a crook. I'll have to make up my mind just what to do now for I don't intend being victimized this way much longer.

Machine was in good shape again this morning—that, is as good as it could be expected to be after Johnson was through with it. Repairs cost me $84.

Boys from office out again this afternoon. Johnson there too. That cad Perkins came up to me and asked in his impudent drawl, "Well, Bleriot, how high have you set the altitude record since we saw you mount above the clouds last?"

I took Johnson aside and told him what I thought of him for unloading a rotten machine on me. He denied it. Jumped in, had one of the boys start propeller and flew eight times around field. Just his luck, of course, to strike a perfectly calm few moments.

I got in and started down the field when a perfect gale arose. I tried with all my skill to right the machine but the front rudder got caught in the wind, then the right end of the plane and up and over backward I was lifted and crashed down in a shower of splintered wood with the heavy engine missing my head by about an inch. The fellows came running over to me and picked me up but I wasn't hurt—much. They asked how it happened and I told them about the furious gust of wind but none of them seemed to have noticed it. Then Johnson said, "you tilted your elevator too sharp and pulled your right aileron all the way down when you were running full speed over the ground. No wonder you went over." But I didn't want to show up his petty jealously before the boys from the office so I said nothing.

There isn't anything left of the machine. It's a pity too because I could have packed up to-morrow and gone for that cross-continent prize.

June 5.

Have been counting up. Here it is:

Smith's machine	$1500.00
Engine for same	1500.00
Engine repairs	150.00
Repairs to Ap. 9	160.00
Johnson's biplane	4000.00
Repairs to May 26	42.00
Repairs to June 4	84.00
Smith, 30 weeks	300.00
Smith's board	450.00
Hotel, self	450.00
Incidentals	500.00
Total	$9136.00

June 7.

See by the magazines that the Curtiss and Wright aviators are signed up for all season at $5,000 per week per man. It's foolish to pay men that much money for doing practically nothing at all—at least what any man could do if he tried. Personally, I don't care much for the class of people who are going into the game.

June 8.

Mighty glad I have decided not to go into the exhibition game in competition with the class of men who are doing it. Two young fellows came back to Mineola today with their machines smashed all to bits. One of the chaps is on crutches, but I cannot waste sympathy on either of them. They are only amateurs—men who have made some very pretty flights here, it is true, but absolutely unfitted for public work yet. That kind of fakir deserves what he gets. He signs up with a promoter in some country town and guarantees to show what an aeroplane can do. Then he goes up there and fails and everybody gets the impression that all aviators are frauds. Such men should be exposed. No man should be permitted to sign contracts until he has proved that he can deliver the goods.

June 10.

Hurrah! I've got two contracts! Signed 'em this morning. The only thing that is worrying me is where to get a machine to fly with.

June 11.

It has just occurred to me that I ought to explain why I accepted those contracts after what I've said about exhibition flying. I met the chap purely by accident—that is, it was by accident that I heard he was in Mineola, looking for aviators. So I hunted him up and caught him just in time to keep him from signing up with Johnson, who has bought a new machine. It's a good thing I did. If I hadn't, Johnson would have made a fizzle of it, and the science would have received another black eye. Besides, with the money I'm to get, I can pay for a good engine. It's only $1500 a week, by the way, I was told that aviators got $5000, but it seems not. If I can only get a machine now to fill these contracts with, I'll be all right.

June 12.

Asked Johnson to lend me his machine for my two weeks. The cad actually refused. Said he was afraid I'd smash it. The idea!

June 13.

It's all arranged. I'm ready to start. Found a chap today with a Curtiss-type that he had built himself. He's never been able to get it off the ground because he can't seem to get much power out of his engine, or something, but I can easily see that he doesn't know much about it. He's willing to sell the whole outfit for $2000. I'm going to borrow the money with my contracts as security, get the machine, fix the engine and come back with my $3000. Then I'll pay back the $2000 and have $1000 cash and my machine.

June 14.

That cad Perkins has loaned me the $2000. Actually refused to consider my contracts as security. Said he didn't believe I could fill them. Took me three hours to pursuade him that I really haven't had a chance yet to show what I can do; finally he let me have his check and took my note without security. I'll show him. I'll show everybody. There has been a lot of knocking about me here at Mineola, but now I'll make them all come to me. The Wrights and the Curtisses along with the rest.

June 18.

My machine is all ready. Ran the engine today for nearly six minutes before it stopped. But that is much better than the other chap did. The best he could ever do was four minutes and a half.

Six minutes is plenty long enough to get the money with. My contracts only require one flight of three minutes in each place to entitle me to my pay. Of course, I promised the promoter that I would make a cross-country flight and flights over the two cities, but I explained that I couldn't put them in the contract because they would depend largely on weather conditions. I think I also told him that I would try for an altitude of three thousand feet, but he seemed so determined to give his people something sensational that I had to tell him I would. Well, if everything works all right I'll do it, too. I must get that $3000.

June 19.

Ran the engine again today and put the scales on to test the thrust. Got 118 pounds. Of course, that isn't enough, but the engine wasn't working very well most of the time. I tinkered around it and it climbed up to a beautiful burst of speed. The scale gave a jump to 225 pounds and I am sure it would have gone higher, only the engine stopped and I couldn't get it going again.

I'll have it working by the Fourth of July—that's when my first date is.

June 21.

Got a letter from the promoter today asking me to send him newspaper clippings about my flights and photographs of my machine in the air. He wants them for his publicity. Don't know just what I can do about this.

June 23.

Wrote to the promoter, telling him I had forwarded his letter to my manager, who is in Chicago booking me for the big meet they are going to have there. Told him my manager has all my press stuff and photographs—that I don't bother about that sort of thing.

Really, I think that is rather clever.

June 24.

Big crowd at the field today. Don't see why they come all the way down from New York to see the ordinary kind of flying that is done here. There were eight machines out and once they were all in the air at the same time. I was very much tempted to take mine out and go up above them, all for some really sensational work, but I thought it best not to appear with every Tom, Dick and Harry who has an aeroplane. It would lower my standing professionally. Besides, I couldn't get my engine to work.

June 25.

The Sunday papers today all rave over the flying that was done here yesterday. For some reason, they don't say a word about what I am going to do next week. They don't seem to realize what it will mean. It's funny, too, for I explained it carefully to both Kruckman and Fanciulli. They seemed very much interested, but they haven't written a thing about it. I'll bet Pete McLaughlin or Captain Baldwin told them to keep it out. They are both jealous of me, though they pretend to be nice enough. Captain Baldwin actually advised me not to

(*Continued on page 28*)

New Books for the Aeronautical Library

Additional Volumes on the Science of Aviation

(*See* FLY MAGAZINE *Book Department in the advertising section for the latest and best books on aeronautics.*)

Aerial Navigation, by Albert F. Zahm, Ph. D., portrays in popular terms the progress of aeronautics from its earliest beginning to the present time. This general history of aerial locomotion is divided into three parts, treating of the growth of aerostation, the growth of aviation and aeronautic meteorology.

Alfred F. Zahm needs no introduction to the world of aeronautic enthusiasts and this "latest word in aviation," from his pen is a triumph as a popular treatise on the growth of aeronautics.

Prefacing his introduction with Ovid's charming legend of Icarus, the story of aeronautics is begun. It is not wrong to call this book a story, for it is such. From the very first pages one is drawn irresistibly to the following c hapters, while well-told anecdotes and clever phrases heighten the interest as the tale runs on. While it is really a history of events and experiments it is so well written and the ideas are so cleverly conveyed to the reader that it reads like a novel. What might have been a "dry-as-dust" volume of dates and formulae, has been turned into what is sure to become "a popular book." A person entirely unacquainted with the science of aviation will find pleasure in reading the pages of "Aerial Navigation," and at the end of the book will find that he has a good general knowledge of the history of aeronautics. It is quite safe to say that nothing in the way of a popular treatise along the lines of this book approaches either in style or completeness this work of Alfred F. Zahm.

The book is attractively bound and is printed on excellent paper. Many of the plates and illustrations have never before been published in this country. The plates are thirty-three in number and there are fifty-eight illustrations.

No aeronautical library is complete without "Aerial Navigation."

Vehicles of the Air, by Victor Lougheed, is not a new book with aeronautic enthusiasts, for it will be remembered as being among the first of its kind to appear in the aeronautic sphere. Since that time it has been recognized as one of the standard works in this most alluring field of modern engineering.

In this, the third edition, the progress that has been made and is being made in aeronautics, is brought up to June 1, 1911. Information in a concrete form is abundant throughout its pages, and plates and illustrations enhance the value of the book to a considerable extent.

The latest revision of "Vehicles of the Air" makes the book invaluable to up-to-date aeronautic enthusiasts. The subjects treated in this new and enlarged edition are: Properties and Characteristics of the Atmosphere, Meteorology, Winds, etc.; Dirigible Balloons, with drawings and photographs illustrating every type; Flying Machines with a history of aviation; Aeroplane Details, covering the various types and entering carefully into the detail of their construction; Propulsion, supplemented with thirty pages of data on propellers, mounting, efficiency, etc.; Power Plants, taking up the mounting, cooling, ignition, carburetion etc.; Bearings; Lubrication, which is exhaustively covered; Starting and Alighting. The subject of Materials, Accessories and Construction are also taken up at some length.

"Vehicles of the Air," contains 270 illustrations and is a book of 500 pages. It is published by Reilly and Britton, at $2.75 postpaid.

This new edition just published can be secured from FLY Book Department, Bulletin Building, Philadelphia, Pa., at $2.75 postpaid.

Boys' Book of Model Aeroplanes. By Francis A. Collins. 12mo. bound in cloth, 267 pages and more than 100 illustrations. Published by the Century Company. Price $1.20 net; postage 11 cents extra.

This latest book for boys, is a continuation of the author's earlier work on model aeroplanes. Mr. Collins in this second volume writes only of results that he has worked with his own hands.

The second "Boys' Book of Model Aeroplanes," brings up to date the fascinating science and sport of model construction and flying, both in this country and abroad.

An interesting feature of the volume is the chapter giving the rules—sanctioned by the West Side Y. M. C. A. of New York, and the New York Model Aero Club—for conducting model aeroplane contests.

There are working drawings and photographs of more than one hundred models and detailed instructions for building fifteen of the latest model aeroplanes.

Among the subjects discussed in this new book are: Model Aeroplanes of 1911, Model Aeroplane Tournaments, Parlor Aviation, Tools and Materials, Theory and Practice of Plane Construction, Scientific Propeller Building, Assembling the Motors, Curiosities of the Air, Directional Control, Model Aeroplane Designs, Designing Aeroplanes, Selected Questions for Beginners, Among the Model Builders, Rules for Conducting Model Aeroplane Contests.

This book makes a strong appeal to every one interested in aeronautics and the same may be secured at once by sending an order to FLY Book Department, Bulletin Building, Philadelphia, Pa.

Questions and Answers

A Department for All Aero Students

Conducted by A. Roe Bugg

Versailles, Kentucky.

Dear Sir:—

If a 60 h. p. Curtiss aero engine turns one propeller with a diameter of 7′ 4″ and a pitch of 6′, at 1100 r. p. m., how fast will it turn two propellers of the above size and pitch connected as the Wrights connect their propellers?

How fast will it turn three or four propellers of the same pitch and diameter?

T. D. C.

A 60 h. p. Curtiss engine will turn two propellers aranged as in the Wright machine at about 525 r. p. m. The propellers should have a wider blade, however, say 12″, be about 9′ in diameter and have an approximate pitch of 10′ 6″. If four propellers are used, two on the same shaft, one fore and the other aft, the speed will be reduced to about 275 r. p. m., so the gear should be changed to suit this speed. The diameter of the propeller could be the same, but the pitch should be increased as well as the width. The only advantage in this arrangement would be in the slightly greater efficiency of the propeller speed. I doubt, however, whether four propellers arranged in such a manner would give good results, as the mechanical friction and the weight would offset such advantage.

Seattle, Wash.

Dear Sir:—

1. How is the head resistance of planes found?

2. How is the proper angle of incidence found to give the most lift with head resistance?

3. How can the gliding angle of an untried aeroplane be found?

4. How much below the center of pressure line does the center of gravity line run in modern practice?

5. (*a*) How is the distance from the center of pressure on the main wings to the center of pressure on the elevators (both front and rear) found?

(*b*) How is the area of plane surface needed on the elevators found?

(*c*) Is there any difference in the size needed on front and rear elevators?

6. Where can I find rules covering problems in gyroscopic action?

F. L. C.

If the person who asks these questions is sufficiently in earnest about it and really wants to know, I feel certain that he would go into the study of the points in question and would learn to analyze intelligently what little there is known of them, for himself. There are no less than ten volumes written on just those six questions, and how the young man expects to get a rule of thumb-way of determining these vital points is beyond me. However, I am pleased to give him what information I have on the subject.

1. By measuring it, the head resistance is usually in the neighborhood of one-sixth of the total area of the main supporting planes. The head resistance is proportional to the square of the velocity.

2. It has been found by experiment that the proper angle of incidence is between 3° and 5°, though in some machines it is as high as 8°.

3. There is no set rule. The only way to find it is to glide from a known elevation. The Wright machine (model B) will glide at 10°.

4. There is no set rule.

5. (*a*) If the weight has been placed properly and the only function the elevator has to perform is that of an elevator, the only thing you have to consider is the quickness with which you want the machine to respond. The larger it is the quicker it will act.

(*b*) Only from experiment.

(*c*) If one answers the purpose, why two of them? The more you have on an aeroplane the more chance there is for something to go wrong.

6. After exhaustive search, I fail to locate anything that covers your question. There are many articles on the subject that I could refer you to if you care to look them up.

Dwight, Ill.

Dear Sir:—

Would you kindly inform me, what kind of wood to use in making a propeller to have a diameter of 8 feet?

What lead has a propeller with blade angles of 32°?

G. H. U.

In order to answer your first question I would like to know what speed you desire. If you will send me this I will be able to give you more accurate information. Your propeller with blade angles of 32° would have an approximate pitch of 18 feet, which I believe is too much.

Chicago, Ill.

Dear Sir:—

Please advise as to the cost of building a Demoiselle?

W. S.

You can probably construct a Demoiselle monoplane for $250. This, of course, does not include the cost of an engine and is also calculating upon you giving your own labor.

Philadelphia, Pa.

Dear Sir:—

Where should a tow rope be tied on a monoplane glider?

How many pounds will 135 square feet of sustaining surface support going at the rate of 20 miles an hour?

A. W. M.

The tow rope should be fastened at the center of gravity. If you attain the speed you mention the approximate weight that could be lifted is about 200 pounds.

If J. T. S., of Brooklyn, N. Y., will send his name and address to A. Roe Bugg the information that he desires will be forwarded to him. It is imperative that this information should accompany every letter. Otherwise no attention will be paid to the queries.

The Ridley Racing Model

Unusual Efficiency Found in the Tractors

By Philip McCutchen

THIS model has shown its good qualities by winning three first prizes. A model of this type fitted with a front elevating plane requires comparatively little adjustment in securing the proper flying angle. The two long sticks or outriggers are silver spruce 33 inches long by ¼ inch square. These are 9 inches apart at the rear and 3 inches at the prow. At the rear the out-riggers are joined by a piece of the same wood 9 inches long by ¼ inch square, and at the front by a semi-circular piece of ⅛ inch cane, this being lashed to the wood, thus forming an efficient landing skid.

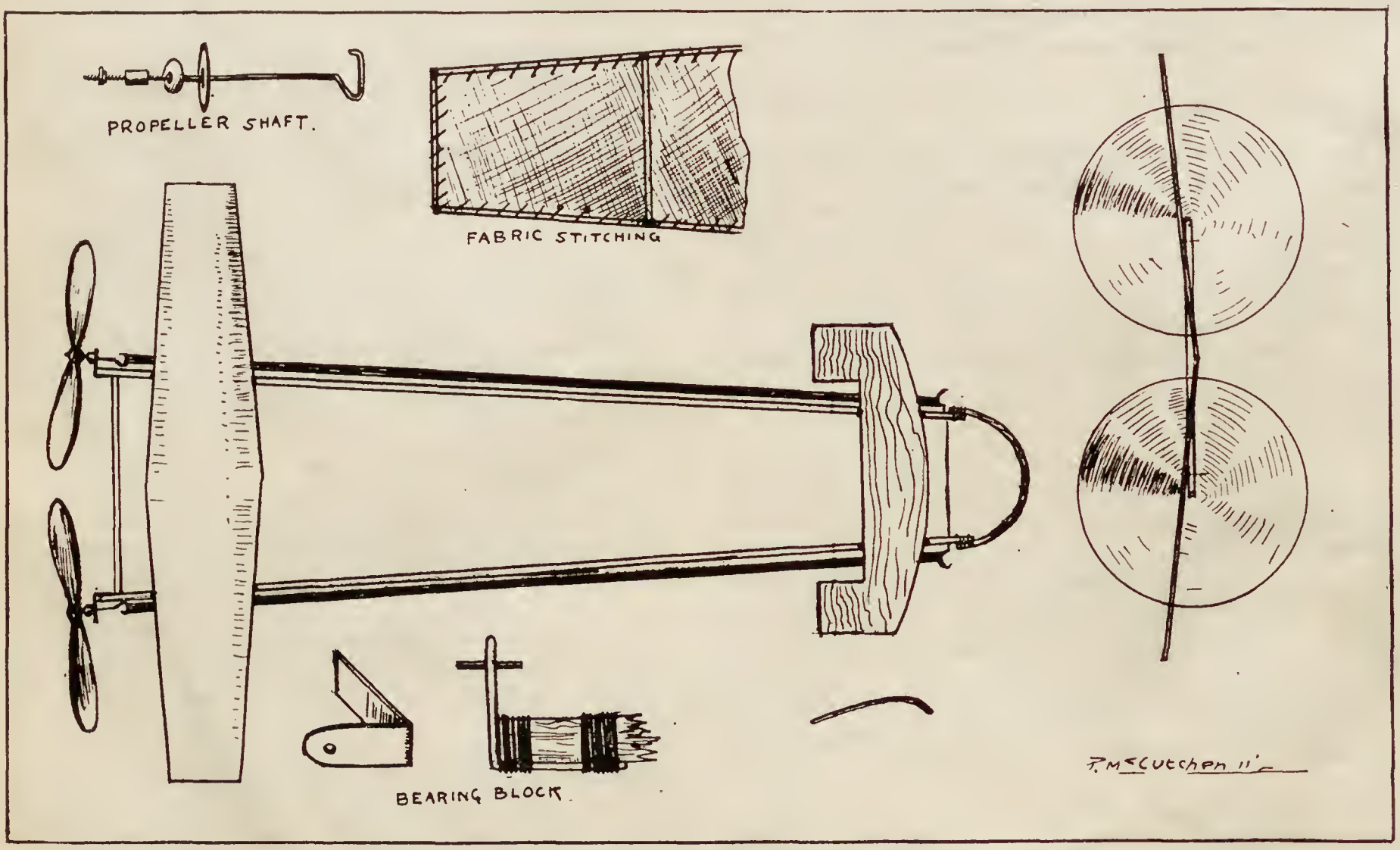
The main plane has a span of 24 inches, tapering from 4½ inches wide at the center to 2 inches at the tips, curvature in the plane is slight. Silk is used as a covering.

The elevating plane is 10 inches by 2 inches. It is made of 1/32 inch spruce, the ailerons, each 2 inches square, being made as part of the elevating plane. The area of the front plane including ailerons, is 28 square inches. Both planes are attached to the frame with bands of rubber.

The propellers are 9 inches in diameter, and 18 inch pitch, and are constructed from 1/16 inch whitewood; they are cut to exact shape, sandpapered quite smooth, and then steamed thoroughly, and bent to correct pitch. The Ridley screws have a remarkable efficiency; the slip loss being extremely small. The pitch is that usually described as compound, that is the angle varies from base to tip, so that the maximum thrust may be obtained; an aero curve is also given to the blades.

The propeller shafts are made of steel and are fitted with small steel nuts to hold the propellers. A copper washer and a Coral thrust are used as a bearing surface. The bearing blocks are cut from sheet brass, bent drilled, and then tacked and lashed to the ends of the motor bases.

Each propeller is driven by 12 strands of 1/16 inch rubber. A rubber lubricant is used to improve the elastic and preserve it in a "live" condition. Average number of revolutions 500.



Robinson Gives Up Flight



Placing the mail-sack in the Curtiss "Triad" at the start of Robinson's Flight down the Mississippi

AFTER covering 371 miles of his journey down the Mississippi, Hugh Robinson, who was attempting to fly from Minneapolis to New Orleans, a distance of 1917 miles, abandoned his trip at Rock Island, Illinois, on Saturday, October 21. Robinson gave as his reasons for this action that there was a lack of financial support from the cities along the Mississippi, which have failed to raise the full amount subscribed or cancelled their agreements entirely.

Dangerous winds prevented Robinson making the start on October 13, his birthday and it was not until October 17, that the real start was made.

Robinson stated that the machine was in excellent condition and quite capable of completing the flight.

New American Record

A new American record for duration was established on October 19, by Howard Gill in a Wright biplane. He flew at Kinloch Field, St. Louis, and remained in the air from 12:49:55 P. M., until 5:06:30 P. M., a total of 4 hours, 16 minutes and 35 seconds. The record was previously established by the late St. Croix Johnstone, who flew at Mineola, Long Island, for 4 hours and 1 minute.

Fowler Starts Again

Robert G. Fowler, who gave up his first attempt to make the transcontinental flight when he found himself unable to soar over the Rocky Mountains, has determined to make another start for it. On October 19, he left Los Angeles, Cal., at 4:55 P. M., and at 5:40 landed at Pasadena, twelve miles distant. He expected to resume flight the following day.

The First Private Meet

(*Continued from page 8*)

In the afternoon Mr. Collier decided to fly to Allaire and accordingly, O. G. Simmons brought out the biplane "Laredo," and made preparations for the flight. Mr. Collier had a rough map of the direction and, equipped with this, they started away. After flying about fifty minutes they saw what they thought was Lakewood and which it afterwards proved to be, and after circling the city and the Young Women's Christian Association Building, they decided to alight on the lawn of what they thought was the Country Club. It proved to be the estate of John D. Rockefeller and the Superintendent was on the spot as soon as they landed demanding to know who it was that thus dared to descend uninvited on the private lawn. The name of R. J. Collier presumably did not mean much to him, for totally ignoring Mr. Collier and Simmons, he turned to the gardener and asked him if he thought they had damaged the lawn in landing. The gardener replied that some of the grass had been bent, but that otherwise there was nothing disturbed. As the Superintendent could not figure out just what the price was on bent grass, he decided not to hold them until the damages were paid. After Mr. Collier had sent his regards to Mr. Rockefeller by the Superintendent, he climbed into the "Laredo" and started off for Allaire, where they were to have luncheon.

It was quite windy and they were flying at an altitude of 1500 to 2000 feet. The country beneath was mostly pines and scrub oaks with an occasional field filled with corn-shocks. About five miles had been accomplished in this manner when Simmons heard the engine miss. They were up 1500 feet and the aviator found himself over a big woods with only an unalluring cornfield in sight. A moment later the engine stopped dead. Pulling the emergency cord and shutting off his engine, Simmons started to glide in spirals to the cornfield, but by the time he had reached it he was unable to guide the machine into the field in a way to land clear of the corn-shocks. Unfortunately, before Simmons could stall the machine, it had hit the corn and the nose of the machine was stuck in the ground, giving both men somewhat of a jolt, but no injuries. Sopwith afterwards remarked that the landing was most excellent under the conditions that brought it about, while Mr. Collier was quite delighted with the coolness with which Simmons had operated the biplane to a safe landing.

Although two of the landing wheels were dished and one side of the planes broken, Mr. Collier had, fifteen minutes later, ordered a new Wright biplane, which arrived on Friday. A farmer was secured to drive them to Allaire, and both men arrived in time for luncheon and to receive hearty congratulations on their trip.

Their total time in the air had been about 1 hour and 7 minutes and they had covered with detours, about fifty-five miles before their trip came to its thrilling finish.

When Simmons journeyed back to the farm the following day to have the machine brought back to "Rest

Hill," vandals had cut away the struts, the small front stability planes, the right-hand rudder control and several minor parts. If this is to be the fate of every touring aeroplane that lands in rural or suburban places, it will be necessary to equip the machine with a Gatling gun to keep off souvenir hunters.

The unqualified success of the private exhibition given by Mr. Collier makes it worthy of being made an example by other men of wealth who have a desire to promote the progress of the world. It is an event, original in American annals, and one that will stand without parallel in aviation history.

Among those present at the house party were: George J. Gould, H. L. Herbert, Milton Barger, Edgar Freeman, John Russell Pope, Clarence Mackey, Conde Nast, Norman Hapgood, Mark Sullivan, J. W. Osborne, J. L. Van Alen, J. E. Cowdin, Rene La Montagne, W. A. Hazard, J. A. Rawlins, Charles Dana Gibson, Richard Harding Davis, Frank B. Garvin, S. A. Clark, Lawrence Waterbury, J. M. Waterbury, Jr., F. Watriss, R. Brooks, L. S. Thompson, Harry P. Whitney, 2d, Payne Whitney, F. Peter Dunne, John Fox, Jr., Eugene Hale, Jr., Devereux Milburn, John G. Milburn, Jr., H. J. Whigham, Charles B. MacDonald, W. P. Thompson, William Stackpole, J. A. Burden, Jr.. A. S. Burden, Charles B. Davis, John Drew, Howard S. Borden, W. Strothers Jones, Edward L. Smith, Walter Damrosch, Walter Camp, James Reynolds, Major Samuel Reber, Gouveneur Morris, James A. Blair, Jr., Charles F. Hart, Charles E. Miner, Rev. J. A. Linane, Rev. J. A. Reynolds, Rev. E. J. Eagen, Rev. J. F. Gough.

Height Record with Passenger

MICHAEL MAHIEU, flying with Manuel Fay as a passenger at Issy-les-Moulineaux, on September 22, established a new world's record for altitude with a passenger when he attained a height of 8,070.85 feet. This point was reached in 58 minutes after the start and the entire flight occupied only 1 hour, 11 minutes and 35 seconds.

The weight carried by the aeroplane totaled 339½ pounds, which is about 9 pounds more than the regulations of the Aero Club of France require.

Diary of An Aviator

(*Continued from page 23*)

take these two dates. Said I wasn't ready for that kind of work yet and might get hurt. I'll show him.

June 26.

That $3000 is mine as sure as fate. Got the engine in great shape this morning and gave it a thorough test. Ran it for seven minutes and forty-six seconds before it stopped. Scales only showed 130 pounds, but ground thrust doesn't mean anything. Everybody agrees to that. Started to take the machine apart today to pack it for shipment. Captain Baldwin was there and advised me to fly it before trying to fill my dates, but I do not consider this necessary. He doesn't seem to realize that I have been in this game long enough not to have to waste a lot of time in practice like these chauffeurs and mechanics around here.

June 28.

Machine shipped. Now to show 'em what I can do after all their knocking. July 4th will be a sorry day for them.

July 3.

Well, here I am and machine all ready for tomorrow. The whole town is crazy about me and the papers are full of me and the things I have done. I made up a lot of things to tell the reporters, because I didn't want them to think that this is my first professional engagement. After tomorrow, I won't have to make things up—and I'll have $1500 in my pocket.

July 9.

Just sitting up. Have a very pretty little room overlooking courtyard of hospital and nurse is rather attractive girl. Too weak to write much, so I will leave details until later.

(*To be Concluded*)

Relaxing Fabric Spells Danger

One danger signal, above the clouds, is *relaxation* of the aeroplane's wings. The cloth is flapping—It cuts down speed and heralds possible disaster.

Plain, "treated" and varnished fabrics are seriously affected by dampness and cold above the earth. They *stretch*—and *relax*.

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American News

The new 1912 model of the Headless Gray Eagle biplane resembles in some respects the Wright flyer in that it has two propellers. These however are arranged in front together with the new 6-cylinder engine. Arrangements are made for a dual control and the two operators are placed in an egg-shaped box directly behind the power plant. The planes are double surfaced. Two large ailerons hinged to the rear struts directly behind the propeller breeze maintain lateral control. All ailerons, rudders and elevators are made of stamped steel and brazed. The Rubel Company states that these have been found to be considerably stronger and about 25 per cent. lighter than laminated wood.

——

A Curtiss type biplane has recently been exciting Rochester with its flights and on one occasion Charles Mink, an amateur aviator, made six successful trips in one day. The machine hung up the local high-water mark on this occasion and the four partners, Fred Wilson, Frank Smythe, Ray Chism and John O'Day, are anxious to become operators as well. The company was formed last January and since that time each partner contributed as much time as possible until the areoplane was completed. The motive power for the machine is furnished by a 50 h. p. engine built by the Maximotor Company, of Detroit.

——

It is rumored that James H. Hare, whose flight with Leo Stevens across New York City, with its almost fatal termination, will be remembered as the first one in aeronautic history, will take up aviation in his spare time. William Manna, a well-known automobile driver of New York, is another one who is slated for aerial navigation. Oliver G. Simmons, the aviator of the biplane "Laredo", has consented to instruct them when they desire to take up the study of aviation.

——

Charles F. Walsh, the Curtiss aviator, established a record at Alberquerque, New Mexico, on October 14, when he carried a passenger for three miles over a circular course at an altitude of about 6,000 feet above sea-level. There has been very little flying in the mountain states of the West because of the difficulty that the aviators have had in getting off the ground in the rare atmosphere.

——

According to a report, Pierre Vedrines is to fly across Mexico. He is slated to arrive at Vera Cruz about December 1, and will have his monoplane set up at that place. From Vera Cruz he contemplates flying to the City of Mexico, 300 miles distant.

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YOUNG MAN, nineteen, wishes to obtain position as helper with some aeroplane concern. Address 1123, 13th Ave., Moline, Ill.

YOUNG MAN requires financial assistance to build aeroplane; has had four years' training in cabinet making and construction and has made one flight as passenger. A great enthusiast. Will make good terms on receipts from flights. References furnished. Thad. T. Taylor, 908 Twentieth St., Rock Island, Ill.

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YOUNG MAN, eighteen, wishes to obtain situation as helper with some aeroplane concern. Address Sylvester Shelly, 7404 J St., Philadelphia, Pa.

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The new Aero Club, of Salt Lake City, has organized with Robert N. Campbell as president. Judge McCornick, Mr. Walker and Mr. Jacklin are among the charter members. All are reputed wealthy men and theirs is an excellent opportunity to advance the science of aviation in that section. On Labor Day all these men made an ascent in the new 80,000 cubic foot balloon which the club has purchased. Since then several ascensions have been made and many new members have been added to the growing list of the club.

The Wright Brothers are again at Kitty Hawk, N. C., where many of their early experiments were conducted. They have with them at the present time, Alexander Ogilvie the famous English aviator and designer. They are working apparently with the idea of constructing a glider that will be capable of soaring flight. Montgomery, Chanute and Langley have all stated their belief in the accomplishment of the indefinite soaring flight, and it may be that the results of the Wright experiments will go a long way to prove their statements.

Lieut. Theodore G. Ellyson and Lieut. J. H. Towers, the Navy's two accomplished aviators, made a remarkable flight on Wednesday, October 11th, in the Navy's Curtiss hydro-areoplane. They started at the naval aviation station at Annapolis, at noon, and landed on the beach at Smith's Point, Va., at the mouth of the Potomac river, 65 miles south of Annapolis, an hour and a half later. The hydro-aeroplane used by Lieuts. Ellyson and Towers, is equipped with the dual control which allows for the shifting of the steering wheel to either man while in the air, without any effect whatever on the machine. The naval aviators were followed as closely as possible by the fast torpedo boat "Bagley."

San Diego, California, is to be the scene of Glenn H. Curtiss' activity in the work of developing both his aeroplane and hydro-areoplane during the coming winter. The chief Curtiss training school will also be located at San Diego again this winter. Already the entire equipment has been shipped from Hammondsport, New York, to San Diego, and with it went the instructors and a number of pupils who were under instruction at Hammondsport. Mr. Curtiss, himself, will follow to San Diego within the course of the next month. He is said to have in mind a number of important experiments which will be carried on at San Diego where he developed the hydro-aeroplane less than a year ago.

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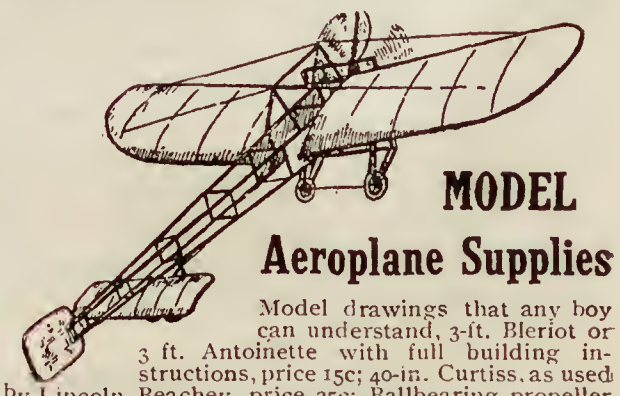
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At the meeting of the Board of Governors of the Aero Club of America, held on October 18, it was voted to increase the number of members of the board from twenty to twenty-four with several out-of-town nominations. The nominations for the election of the officers of the club for the following year included, for President, Robert J. Collier; First Vice-President, James A. Blair, Jr.; Second Vice-President, Major Samuel Reber; Third Vice-President, Harold F. McCormick; Fourth Vice-President, Henry A. Wise Wood.

During a meet held at Canton, Ohio, September 26 to 29, Walter Brookins is said to have established a record for accurate landing. A four-foot square was marked in the center of the field. Atwood failed to come to a stop anyhere near the mark, but when Brookins landed, his biplane came to a stop directly over the square.

Mr. E. R. Brown, who built at Baltimore, Md., the hydro-aeroplane "Lord Baltimore II," and which was flown successfully by the genial Anthony Jannus, has located in Bridgeton, N. J., and will build there a biplane. Mr. Brown claims the distinction of building the second hydro-aeroplane to fly in America.

Several thousand persons witnessed a successful test of the aeroplane owned by M. B. Cumbler, of Harrisburg, a candidate for Treasurer of Juniata county, with which machine he and his aviator, Samuel Trickell, of New York, have for some months been experimenting near Lancaster, Pa. The test flight was made on Richard P. McGrann's Grand View Farms.

Brigadier General James Allen, chief of the Signal Corps of the Army, has begun active work in planning the winter's campaign of the army aviators under his direction. The aviation corps will go South for their winter's work, said General Allen today, but have not decided yet where their headquarters will be. The work at the Government aerodrome at College Park, Md., will close about the end of October.

The Aeronautical Society of California has established its flying grounds at Dominguez Field and have built a large number of sheds, together with shops and training quarters. This society operates with genuine Bleriot monoplanes, and also has a number of biplanes of the latest type and construction. The passenger-carrying Bleriots are equipped with Gnome motors, while the small Bleriots and biplanes are operated with Hall-Scott engines. Captain Baldwin has been using the Hall-Scott motor in his biplane all season.

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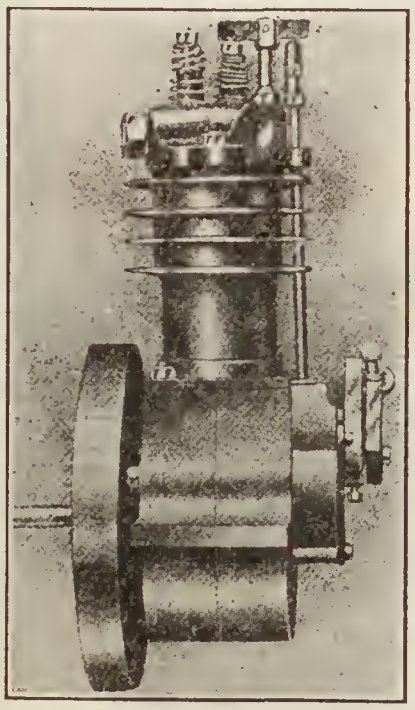
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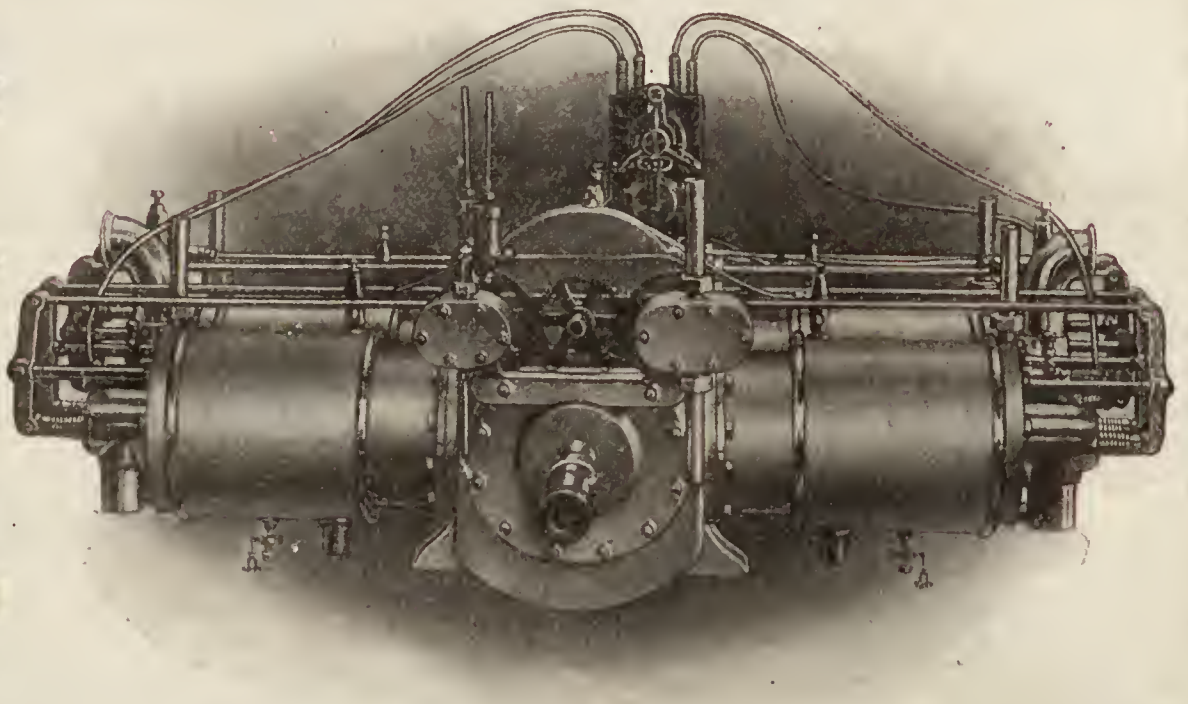
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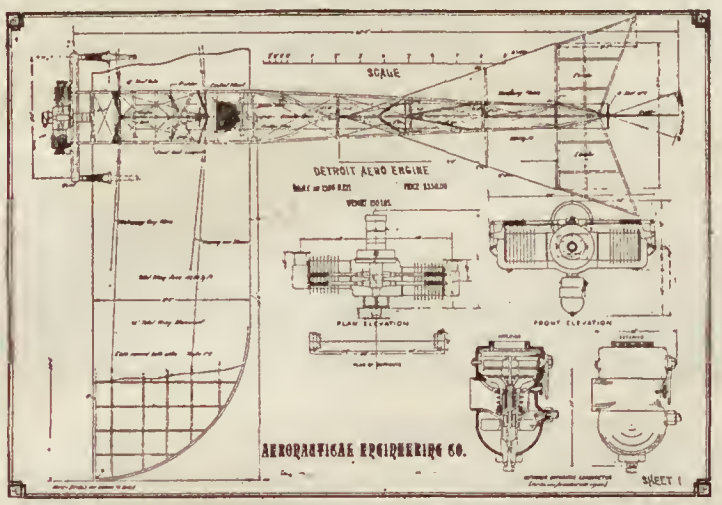
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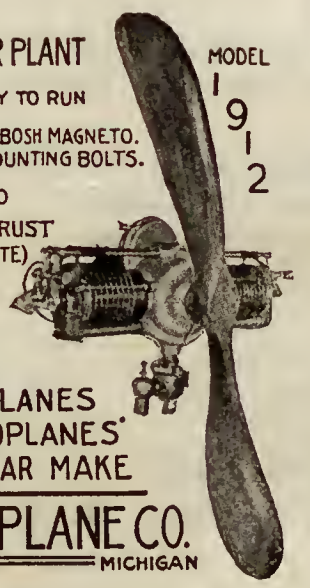
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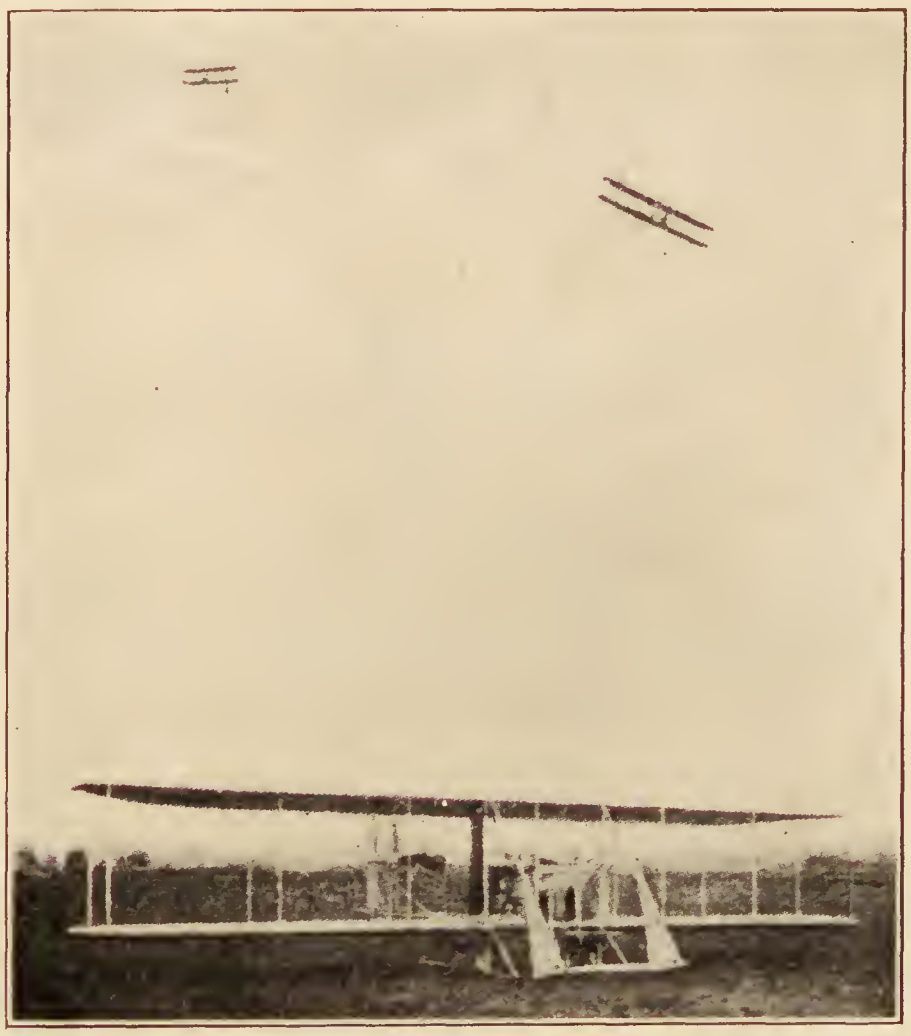
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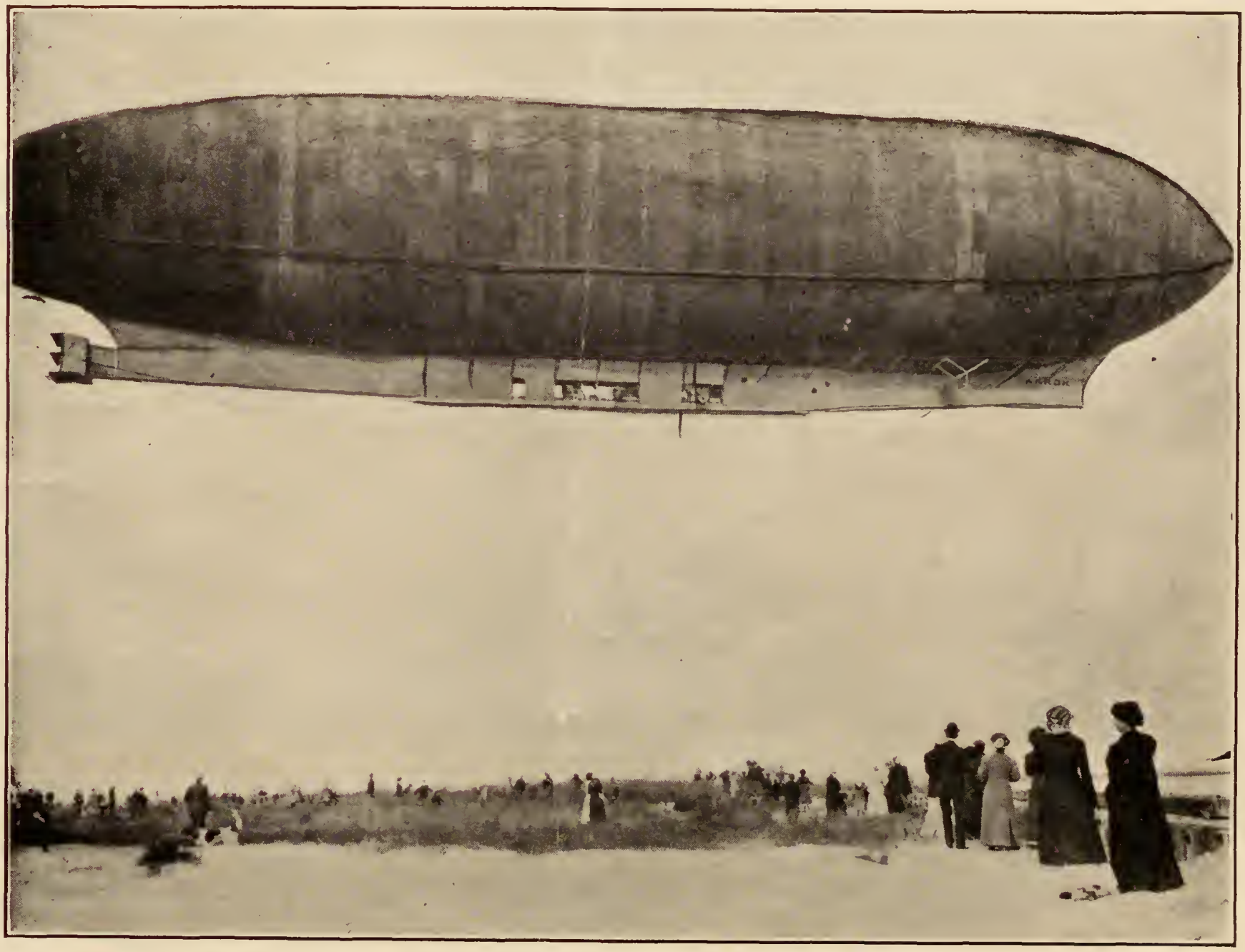
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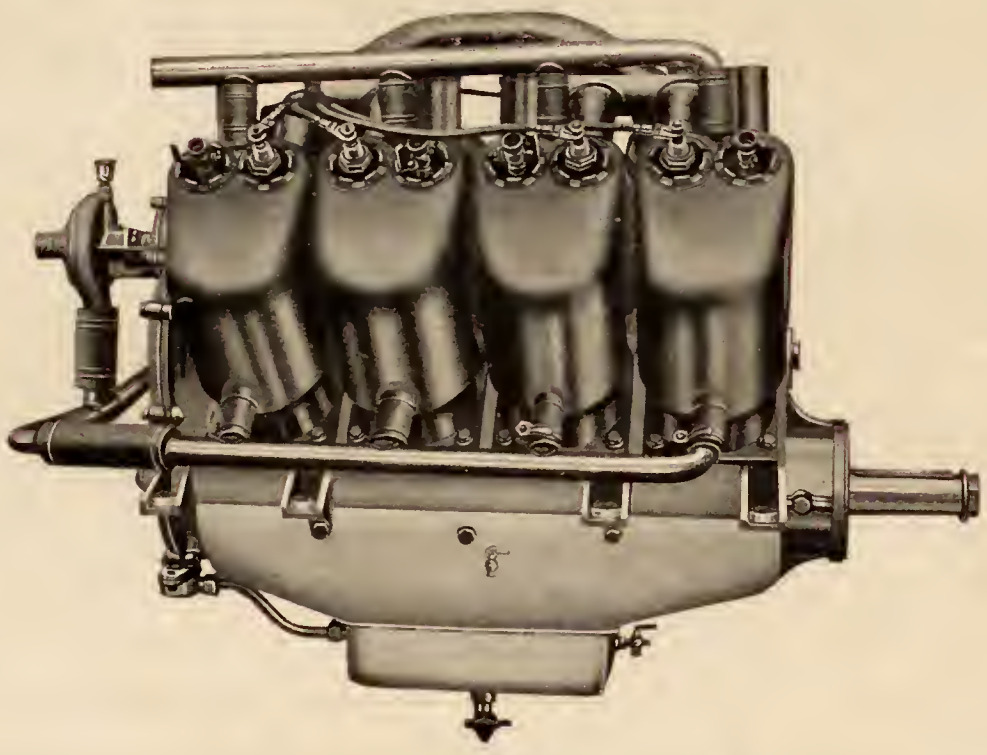
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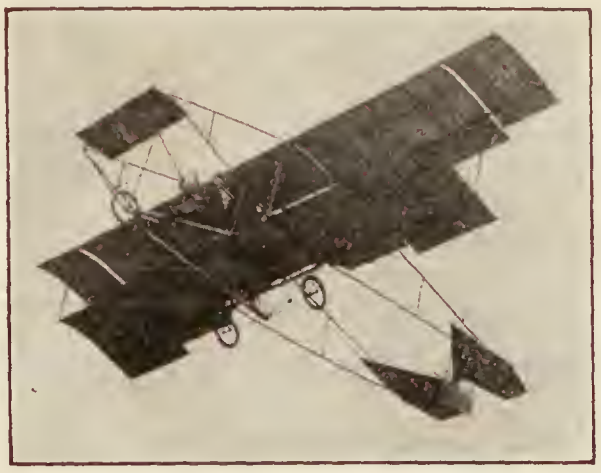
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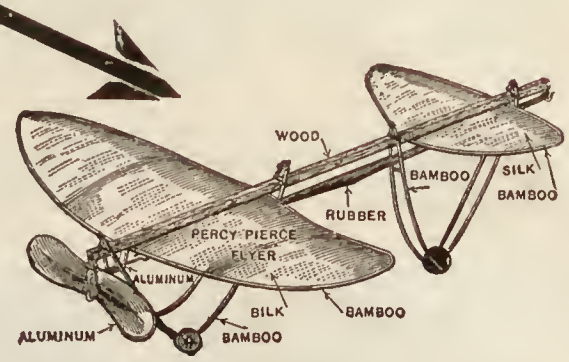
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Dirigible "Akron" Has Trial Trip

Moore Discourages Ocean Flight

THE dirigible balloon, "Akron," commanded by Melvin Vaniman, has had its trial trip, the success of which there seems to be a difference of opinion. The get-away was fine, but the descent was somewhat abrupt and disconcerting, as the big dirigible settled unexpectedly and poked its nacelle in the meadows near Atlantic City. Later the "Akron" was towed back to her moorings at the Inlet.

On the morning of November 4, the big airship was drawn from its shed at the Atlantic City Inlet, and after her crew had climbed safely aboard, Vaniman cried to "let go," and the "Akron" on her maiden dip in the air bounced up perhaps one hundred feet, and then with the propellers whirring noisily the dirigible pointed its nose due north and started forward.

The crew consisted of Louis Loud, chief engineer; Jack Irwin, wireless operator; Louis Blotcher, mechanician; Frank Seiberling, Jr., son of the backer of the venture; Carlton Vaniman, brother of the commander of the "Akron," and Melvin Vaniman, captain and designer of the dirigible.

For half an hour after the "Akron" took the air it hovered above the waters of the Inlet, maneuvering in graceful curves in all directions. Then the dirigible swooped toward its shed, as if to land, but apparently the captain changed his mind, for five minutes later the "Akron" was sailing over the center of the city. When the whir of the propellers was heard in Atlantic City, it took about two minutes for the entire resort to empty its visitors and inhabitants into the street to watch the dirigible. Meanwhile the airship circled City Hall and put a quietus on municipal affairs for a few moments, and then darted away toward Ventnor.

After reaching this point the nose of the "Akron" was turned and started toward home again. Things were working well and the airship swooped across the Thoroughfare to the meadows in splendid style. After sailing close to the woods of the mainland the "Akron" again turned, but had no sooner done so than it was seen to settle down into the mud of the meadows.

The cheers of the crowds near the dirigible shed and on the house-tops of Atlantic City became very still and chills of apprehension stirred the spectators.

Word, however, soon reached the city that Vaniman had merely descended to take on water. This feat was repeated six times. Then noticing an express train approaching in the distance, the "Akron" circled and started to race it into the city, defeating it by about its own length.

More maneuvers followed and a little later, after crossing a six mile stretch of water, the "Akron," as though with the day's work, settled calmly down on the mud flats and refused to be moved. Here the crew waited patiently until boats arrived with food and water. While later Government boats from the life-saving station also came to their aid.

The cold snap had contracted the gas in the balloon, and when Vaniman made his start from the Inlet he was forced to leave behind one of his men in order to lighten the ship. The several landings had also reduced the gas supply, and while Vaniman was maneuvering over the flats, testing his new sustentation apparatus, the sun disappeared and a chill settled over the marshlands. This reduced the buoyancy of the gas and it descended. Vaniman figured that the sun would immediately reappear and that with the expansion of the gas the dirigible would rise easily. This did not occur, however, and thus it was that, aided by several power boats and a number of men, the dirigible was towed into its shed at the Inlet about 8 P. M. that evening.

"We're tickled with the performance of the 'Akron,'" said Vaniman. "She behaved beyond expectations. The only damage we sustained was a broken propeller blade on one of the orientables on the left side and a snapped guy wire. It'll cost about twenty dollars to make repairs.

"Now we know that a trip across the Atlantic is merely a little more trying and longer, but entirely possible. With such a good crew and perfectly performing dirigible success is already almost certain. Every invention we have on the 'Akron' came up to expectations."

Despite the optimism of Vaniman regarding the proposed trans-Atlantic flight in the "Akron," Willis Moore, Chief of the Weather Bureau, has advised Vaniman that such a trip will be foolhardy at present.

"Mr. Vaniman wanted the Weather Bureau to advise him as to a propitious time for making his start," said Professor Moore. "That was impossible. The weather is subject to quick changes on the ocean and our source of information concerning it is so comparatively meager that we cannot plot out meteorological maps with the same certainty that we can maps which cover land areas.

"Apart from that, however, it would seem that Wellman's experience last year in the balloon America should have been sufficient to convince Mr. Vaniman that his proposed transatlantic voyage is an almost hopeless undertaking. He may be favored by winds

for a part of the distance, but before he is half way over it is almost certain that he will be confronted by strong adverse winds. Nobody has yet succeeded in constructing a dirigible gasbag which can make progress against heavy winds or storms. Wellman's balloon could not do it. Even the aeroplane of today cannot do it for purposes of ocean travel.

"When the ocean is crossed from America to Europe it will have to be done by a flying machine which can travel at an altitude of six miles or more. Only at that height can storms be evaded. For the gasbag such an altitude is practically impossible. The temperature at that height is about 50 degrees below zero and would so condense the gas as to deprive it of a great part of its lifting power. At the same time, the atmospheric pressure is only one-fourth of that which we experience at the earth's surface. So you can see that the balloon is handicapped by both these considerations to such an extent as to be out of the question."

Noted Aeronaut Dead

THROUGHOUT aeronautical circles in America grief is expressed at the news of the untimely death of Edgar W. Mix, the well-known American engineer and daring aeronaut.

There seems to be little doubt expressed but what he committed suicide by jumping overboard from an English Channel steamer on the evening of November 12th, although Henry R. French, brother-in-law of Mix, of Boston, has asked the State Department to investigate, as he claims that no conceivable reason has been given for Mix taking his life.

Edgar W. Mix was a member of the Aero Club of America and of the Aero Club of France, and had represented both countries in international contests.

In 1907, with Alfred Leblanc as pilot, Mix started from St. Louis in the international balloon race in the Isle de France and finished second, covering 867 miles and being only five miles behind the winning balloon, Pommern, piloted by the late Oscar Erbsloeh.

In 1909 Mix was the only American contestant in the international race starting from Zurich. There were seventeen contestants, but the America II, which Mix piloted, landed in Warsaw on the third day out and was found to have won the race. Mix was promptly arrested by the Russian authorities, but was released on the order of late Premier Stolypin.

Mix had returned from the United States to France with the papers to present at the Rome Conference of the International Aeronautic Federation, regarding the position of the Aero Club of America relative to the English protest against the award of the Statue of Liberty prize to the late John Moisant. It is believed that Hart O. Berg will succeed Mix as one of the Aero Club of America delegates to the conference.

Aeroplanes in Commerce

AEROPLANES are becoming a factor of international commerce. The records of the Bureau of Statistics of the Department of Commerce and Labor show that more than $50,000 worth of aeroplanes were imported into and exported from the United States in the months of July, August and September of the current year.

The bureau only began the maintenance of a separate record of this comparatively new article of commerce with the opening of the current fiscal year. In the month of July, the first month of the new fiscal year, the official records show that two aeroplanes were exported from the United States at a total valuation of $6950. In the month of August, 1911, two machines were exported to Canada, their total value being $8000. In the month of September, 1911, one aeroplane was exported to Canada, its stated value being $3,500, making the total value of exports of aeroplanes in the three months for which a record is now available $18,450, or an average valuation of $3690 each.

On the import side no transactions are given for the month of July, but in the month of August two aeroplanes were imported from France, their combined value being stated as $15,091. In September the number imported was six, valued at $22,752, one being from England, valued at $4700, and five from France, valued at $18,052, making the total importations of the three months in question eight aeroplanes, valued at $37,843, or an average valuation of $4730 each.

Triad for Russia

AMERICAN built aeroplanes have been recognized in Russia, and the Curtiss Company has just announced the sale of a hydro-aeroplane of the type now used by the United States navy to the Russian Aerial League of St. Petersburg. The machine is of the large type, equipped with 75 H. P. motor to carry a passenger in addition to the operator, and also has the dual control such as is now used by the United States navy. This control permits of two aviators operating the machine alternately, and is regarded as of great importance in long flights.

There is a keen interest in the Curtiss hydro-aeroplane in foreign countries, not only on the part of individuals who see in the use of the hydro-aeroplane a lessening of the dangers of aviation, but on the part of the military authorities as well. The hydro-aeroplane sold to the Russian Aerial League will be demonstrated at St. Petersburg by one of the trained Curtiss operators of this type of machine, probably Hugh Robinson, who recently made a flight in a Curtiss hydro-aeroplane from Minneapolis to Rock Island, a distance of 375 miles down the Mississippi River.

American Aviation Records in Closed Circuit Without Stops

(Checked to November 1, 1911, by G. F. Campb ell-Woods, Secretary Aero Club of America.)

A. SPEED.

1. Time on a Given Distance

(a) *Aviator Alone.*

Distance. Kilom.	Miles.	Holder.	Place.	Date.	Machine.	Time.
5	3.107	A. Leblanc	Belmont Park, N. Y.	Oct. 29, 1910	Blériot	2′ 44⅘″
10	6.214	A. Leblanc	Belmont Park, N. Y.	Oct. 29, 1910	Blériot	5′ 30⁹⁄₁₀″
20	12.427	A. Leblanc	Belmont Park, N. Y.	Oct. 29, 1910	Blériot	11′ 04⅘″
30	18.641	A. Leblanc	Belmont Park, N. Y.	Oct. 29, 1910	Blériot	16′ 38⅗″
40	24.855	A. Leblanc	Belmont Park, N. Y.	Oct. 29, 1910	Blériot	22′ 12⅗″
50	31.068	A. Leblanc	Belmont Park, N. Y.	Oct. 29, 1910	Blériot	27′ 48⁷⁄₁₀″
100	62.137	C. Grahame-White	Belmont Park, N. Y.	Oct. 29, 1910	Blériot	1 hr. 00′ 41⁷⁄₁₀″
150	93.205	St. Croix Johnstone	Mineola, N. Y.	July 27, 1911	Moisant (Blériot-type)	2 hrs. 08′ 01⅕″
200	124.274	St. Croix Johnstone	Mineola, N. Y.	July 27, 1911	Moisant (Blériot-type)	2 hrs. 49′ 52⅕″
250	155.342	St. Croix Johnstone	Mineola, N. Y.	July 27, 1911	Moisant (Blériot-type)	3 hrs. 32′ 56⅖″

(b) *Aviator and One Passenger.*

10	6.214	C. Grahame-White	Nassau Boulevard, N. Y.	Sept. 30, 1911	Nieuport	6′ 13⅖″
20	12.427	C. Grahame-White	Nassau Boulevard, N. Y.	Sept. 30, 1911	Nieuport	12′ 26⅗″
30	18.641	C. Grahame-White	Nassau Boulevard, N. Y.	Sept. 30, 1911	Nieuport	18′ 42″
40	24.855	C. Grahame-White	Nassau Boulevard, N. Y.	Sept. 30, 1911	Nieuport	24′ 49⅘″
50	31.068	C. Grahame-White	Nassau Boulevard, N. Y.	Sept. 30, 1911	Nieuport	31′ 01⅗″

(c) *Aviator and Two Passengers.*

5	3.107	T. O. M. Sopwith	Chicago, Ill.	Aug. 15, 1911	Wright	6′ 56⅖″

2. Distance in a Given Time

(a) *Aviator Alone.*

25	15.534	A. Leblanc	Belmont Park, N. Y.	Oct. 29, 1910	Blériot	15′
50	31.068	A. Leblanc	Belmont Park, N. Y.	Oct. 29, 1910	Blériot	30′
95	59.030	A. Leblanc	Belmont Park, N. Y.	Oct. 29, 1910	Blériot	1 hr.
		C. Grahame-White	Belmont Park, N. Y.	Oct. 29, 1910	Blériot	2 hrs.
141.97	88.216	St. Croix Johnstone	Mineola, N. Y.	July 27, 1911	Moisant (Blériot-type)	2 hrs.
214.57	133.327	St. Croix Johnstone	Mineola, N. Y.	July 27, 1911	Moisant (Blériot-type)	3 hrs.
283.628	176.238	St. Croix Johnstone	Mineola, N. Y.	July 27, 1911	Moisant (Blériot-type)	4 hrs.

(b) *Aviator and One Passenger.*

24.14	15	C. Grahame-White	Squantum, Mass.	Sept. 4, 1911	Nieuport	15′
48.28	30	C. Grahame-White	Nassau Boulevard, N. Y.	Sept. 30, 1911	Nieuport	30′

3. Greatest Speed Obtained, Whatever the Length of Flight

Holder.	Place.	Date.	Machine.	Speed Per Hour. Kilom.	Miles.
		(a) *Aviator Alone.*			
A. Leblanc	Belmont Park, N. Y.	Oct. 29, 1910	Blériot	109.237	67.877
		(b) *Aviator and One Passenger.*			
C. Grahame-White	Squantum, Mass.	Sept. 4, 1911	Nieuport	101.762	63.232
		(c) *Aviator and Two Passengers.*			
T. O. M. Sopwith	Chicago, Ill.	Aug. 15, 1911	Wright	56.263	34.96
		B. GREATEST DISTANCE.		Distance Covered.	
		(a) *Aviator Alone.*		Kilom.	Miles.
St. Croix Johnstone	Mineola, N. Y.	July 27, 1911	Moisant (Blériot-type)	283.628	176.238
		C. GREATEST DURATION.			
		(a) *Aviator Alone.*		Duration of Flight.	
Howard W. Gill	Kinloch, Mo.	Oct. 19, 1911	Wright	4 hrs. 16′ 35″	
		(b) *Aviator and One Passenger.*			
G. W. Beatty	Chicago, Ill.	Aug. 19, 1911	Wright	3 hrs. 42′ 22⅕″	
		(c) *Aviator and Two Passengers.*			
T. de W. Milling	Nassau Blvd., N. Y.	Sept. 26, 1911	Burgess-Wright	*1 hr. 54′ 42⅗″	

D. ALTITUDE.

1. Greatest Altitude

				Altitude Attained. Metres.	Feet.
		(a) *Aviator Alone.*			
L. Beachey	Chicago, Ill.	Aug. 20, 1911	Curtiss	3,548½	11,642
		(b) *Aviator and One Passenger.*			
C. Grahame-White	Nassau Blvd., N. Y.	Sept. 30, 1911	Nieuport	1,020	3,347

2. Climbing. (Upward Vertical Speed)

(a) *Aviator Alone.*

				Altitude. Metres.	Time.
R. Simon	Chicago, Ill.	Aug. 19, 1911	Blériot	500	*3′ 35″
T. O. M. Sopwith	Chicago, Ill.	Aug. 19, 1911	Blériot	(1,640 ft.)	

(b) *Aviator and One Passenger.*

C. Grahame-White	Nassau Blvd., N. Y.	Sept. 30, 1911	Nieuport	1,000 (3,280 ft.)	*9′

E. ALIGHTING.

(a) *Aviator Alone.*

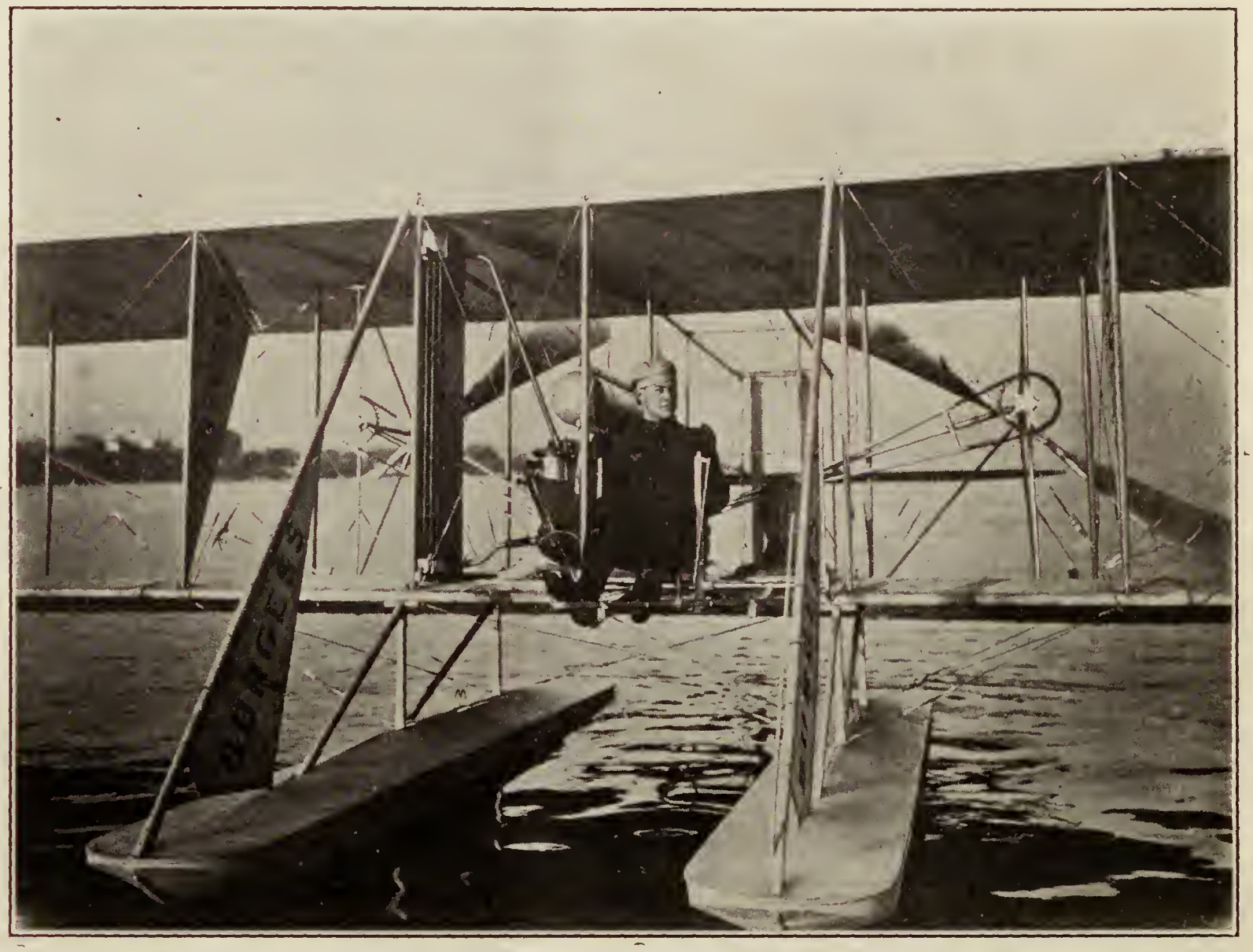
				Distance From Mark.	
T. O. M. Sopwith	Nassau Blvd., N. Y.	July 22, 1911	Howard Wright (Farman-type)	(0.445 metre)	1 ft. 5½ in.

F. WEIGHT-CARRYING.

				Weight.
P. O. Parmelee	Chicago, Ill.	Aug. 19, 1911	Wright	458 lbs. (207¾ kilog.)

*World's Records.

New American Hydro-Aeroplane Successful



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The New Burgess-Wright Hydro-Aeroplane

Hydroplanes Fitted to Burgess-Wright Biplane

WITH the introduction to the world of the Burgess hydro-aeroplane, the industry in America receives another great impetus. Foreign countries have been working for some time to develop a type of aircraft that will arise from and alight on the water. But the real success of this part of the aeroplane industry has been in America.

Recently, the Burgess Company fitted pontoons to their Model F, which was equipped with a thirty-five horse-power Wright motor, and started making flights in the harbor at Marblehead, Mass. For two weeks it was flown almost every day and alighted and arose from the surface of the water easily.

On October 25th, the first set of hydroplanes were launched in Marblehead Harbor, and almost daily since then the machine has been flown not only by the company's licensed aviators, C. L. Webster and P. W. Page, but by W. Starling Burgess himself. The machine has been flown in all sorts of weather, ranging from calm to 25-mile winds, with no difficulty whatever, carrying one and two passengers, and up to this time not the slightest breakage of any part of the equipment has been experienced.

The hydroplanes are of the single step, V-shape bow variety, are 14 feet in length, about 2 feet wide and about 10 inches deep. The bridge trussing which

replaces the Wright skid is lined with the best cedar and covered with enamelled canvas. The result obtained has been at an increase of weight over the standard machine of only about 30 pounds.

The aeroplane rises from the water easily in about 200 feet in a dead calm, and less than 50 feet more with two passengers.

The hydroplanes used on the floats were designed by W. Starling Burgess who, together with Everett Webster, have been making the initial flights. The "boats" are 14 feet long and 2 feet wide and are attached to the lower plane by ash uprights, which are built in the structure of the hydroplanes, in the same manner that skids are joined. The "boats" are 10 inches in depth and each can carry about 1,000 pounds.

The curved bottoms of the hydroplanes at the bow gives them greater strength and makes them safer for steep dives into the water. They are trussed the entire length with deep spruce trussing, resembling bridge work, which distributes the load and permits light construction. The "hydros" add about 100 pounds to the weight of the machine. The tops are closed with a cloth heavily coated with paint.

A device has been attached to prevent a dragging vacuum forming behind the step of the hydroplane. Two small tubes running from the step to the top of the floats, prevent the forming of this vacuum.

Captain Irving W. Chambers, head of the Aeronautic Department of the Navy, visited Marblehead on November 11, and after careful inspection of the hydroplanes and watching a number of test flights, placed his order for a set of hydroplanes to equip the standard Wright belonging to the Navy, which has not been flown much at Annapolis on account of the fact that flight over water is required almost exclusively.

While Captain Chambers was in Marblehead, W. Starling Burgess flew the machine across the harbor and over the ocean to Beverly and back, circling a yacht running at seven knots an hour. This flight lasted about 33 minutes, during which time the hydro-aeroplane landed beside the yacht and arose several times. On November 9th, Howard W. Gill, present holder of the American duration record, made a number of flights and was delighted with the ease with which the machine could be flown.

Frank Coffyn and Walter Brookins have visited the plant, and Coffyn made a fifteen-minute flight and reported the machine thoroughly practicable in every way.

J. Greely Curtis predicts that within a year, aviation schools will teach flying with hydro-aeroplanes, as there will not be the danger of injury to the student and to the machine as well that there is on land.

Pupils now under instruction at Marblehead, and who are learning to fly the hydro-aeroplane are Herbert H. White, Cambridge, Mass.; H. M. Morton, of New York City, and Patrick Grant, of Boston.

"FLY"

(From the *Detroit News*, issue of November 12, 1911.)

It has hardly occurred to the land-going man that a new system of maps differing materially from those in use for terrestrial journeyings must be devised for the use of the bird-man. E. Adrian von Muffling suggests the character of the new maps in an article in the November issue of FLY. "The aviator," says he, "has very little time at his command and cannot, therefore, examine his maps very closely. All indications should jump at his eyes so to speak. Here are some of the things that the map ought to show; outlines of cities, principal movements of surface, forests, aviation fields. This breezy little periodical gives all the news of interest to the new science of aviation.

Fatality at Rheims

DURING the military aviation contest at Rheims, France, d'Esparmet, one of the Bleriot pilots taking part, fell to his death from a height of about 600 feet.

On the morning of October 27 he arose from the grounds at 7.30 in a Bleriot monoplane of 140 horsepower. Five minutes later he had disappeared on the horizon. By 10 o'clock he had not returned and much anxiety was felt. A few moments later word came that D'M. d'Esparmet had met with an accident. The engineers and machinists of the Bleriot firm immediately left in an automobile for the scene of the accident.

Two workmen who were passing along the road, and who were eye witnesses of the fatality, tell how they saw several aeroplanes pass overhead and, as they stopped to watch them, one of them stopped and crashed to the ground. The aeroplane hit the embankment of a railroad line with tremendous force, hurling the aviator several yards from his machine.

The two men rushed to the spot and found the aviator with his head buried ten inches in the ground. They laid him on his back and summoned a physician, who stated that d'Esparmet had been instantly killed. His skull and backbone had been fractured, while both arms and one leg were broken.

It is stated that the sudden stoppage of the motor caused the machine to fall before the aviator could operate the control to change the direction. A long streak of blood on the left wing of the monoplane seems to support the theory that d'Esparmet was injured before the machine reached the ground.

The World's Greatest Need of Aviation

The Hazard of Flying a Drawback

By Hudson Maxim

EXPERIENCE has proved that it is well nigh a truism, as applied to the present mechanical age, that when there is a strong demand for a thing, inventive genius will find a way to its accomplishment.

It is probable that the human race has advanced in almost every sphere of accomplishment and enlightenment more during the last hundred and fifty years than it had advanced up to that time in all the eons that had dragged their slow length along, from the time when man's scientific instruments, tools of trade, and weapons of war were slivered out of stone.

In aviation such wonders have been accomplished during the last decade that we look with soul-comforting satisfaction upon present aeronautical achievement.

It is a wonderful sight to see an aviator rise from the earth and plane his way with his frail craft, circle upon circle, up and up until he is lost in the blue of heaven; and then to see him return, sliding down a huge spiral to earth again.

Recent cross-country flights are also marvelous accomplishments. The aeroplane itself, however, constitutes but little of the marvel. It is the aviator. It is to the skill, amazing present-mindedness, and daring of the bird-man, and to his no small measure of endurance, that is due the credit.

Now that we understand it, the aeroplane is simple enough. It is not in itself the true flying machine. It constitutes but a small part of the real mechanism of flight. The flying machine is now constituted of both the man and the plane. The aviator supplies the automaticity of equilibration which the machine lacks.

The automobilist, too, is a part of his machine, but not to the extent that the aviator is a part of his flying machine. The automobilist rides upon the two-dimensional plane of the earth's surface. He has to guide his machine only to right or left, while the aeroplanist must steer right and left, up and down, and in addition to all that, must, like a bicyclist, keep his own poise constantly adjusted. The aeroplane gives the aviator only his wings and the driving power. Everything else must be supplied by him.

When we look seriously upon the aeroplane, as now made, it is a startlingly frail contraption. The tenure of the life of an automobilist is no more secure than his steering gear. The tenure of the life of an aviator is no more secure than is the dependability of function of the delicate and frail mechanism of control. His life is no more secure than is the certitude with which he can voluntarily perform with the skill of an acrobat a dozen newly acquired evolutions, wholly new to mankind up to a few years ago.

I do not pretend to be able to point out exactly what should be done to render the present flying machine much stronger and much more reliable and enduring in every part. I am unable to point out just what should be done to secure the needed automatic equilibration, for were I able to indicate them I would patent them and go to building flying machines. But these improvements are sure to come some day, and the present needs of aviation ought to stimulate our young inventors to greater and greater improvements in the flying machine.

Aviation has come to stay, and in the not distant future the flying machine will be about as common a sight as the automobile. There is no one field at the present time which offers a better opportunity for both fame and pecuniary reward than the higher development of the aeroplane.

There is a tremendous demand for aeroplanes which will be safe and practical, and so safe and practical that business men can employ them to go back and forth from city to country home. But the husband and father does not want a machine that will hang his life on a thread of wire or a turn-buckle. He does not want to be sent to the cemetery through the sticking of a control lever. He does not want a machine so frail or so difficult to control that an unexpected gust of wind will make his wife a widow and his children orphans. The wife and mother, when she sees her husband depart upon his morning flight for the city, does not want to feel that the chance of his coming home safely at night is cumbered up with the chance also that he may be fished out of lake or river, rescued from a tree top, or his fragments gathered from the rocks of an unlucky landing place to be sent home in a basket.

Aeroplanes must be made more staunch, more reliable, and much safer than they now are. They must be provided with automatic equilibration. Safe landing areas must be provided at short intervals under accustomed lines of flight.

At the present time the dangers of aviation make heroes of the aviators, and lend a charm to the sport.

It is human nature to admire skill and great daring. We admire the man who can stand upon his head on the apex of the church steeple. We love the acrobat who can walk a wire over the brink of Niagara. The Spanish populace, witnessing a bull-fight, gives itself up to a wild ecstasy of applause when the beloved toreador, just mising being killed himself, succeeds in killing the bull. We thrill with delight to see the automobilist in the cup race go around a hairpin curve like a streak of light, hanging his life on chance. We idolize the aviator doing the death dip. But for plain, sober, every-day, family use, such dare-deviltry is out of place, and we must have safety also, with the convenience that the flying machine is to bring.

Calbraith Rodgers Makes a New World's Record

Flies Across Continent in 49 Days

Rodgers' World Record

Distance,..... 4,231 miles.
Actual flying time, 3 days, 10 hours, 4 minutes.
Elapsed time,.... 49 days.
Rate of speed, ... 51.59 miles per hour.
Former record held by Harry Atwood.
St. Louis-New York, distance 1,265 miles.

A NEW world's record for cross-country flying was established by Calbraith Rodgers when he flew into Pasadena, California, in a Wright biplane on November 5. His trans-continental flight, begun from Sheepshead Bay, New York, on September 17, officially terminated in Pasadena. At that point his route had led him 4,231 miles and he had consumed forty-nine days in accomplishing it.

With Fowler and Ward, Rodgers set out to win the $50,000 prize offered by W. R. Hearst for the first aviator who would fly across the continent in thirty days and before October 10, 1911. It must be stated that Rodgers asserted before he left New York that he would perform the flight if it took six months, but it should be considered that with the Armour Company holding out a financial remuneration for certain conditions to be fulfilled, he had more of an incentive than the other men.

At least ten days of the forty-nine consumed, may be charged to breakage and delay in getting parts. Most of these were occasioned by bad landings and smash-ups before getting off the ground. Had Rodgers been a more experienced flyer and more familiar with cross-country flying, he would no doubt have improved considerably upon his record. However, he has demonstrated that such a flight is possible and nothing can detract from the credit due him for the accomplishment of the flight.

As Rodgers approached the end of his journey, thousands of people gathered to watch him pass or land and when he flew into Pasadena, more than 12,000 people were on hand to give him a royal reception. Among those who greeted him at the reception given in his honor, were Mrs. Hoxsey, mother of the famous aviator, and Mrs. Roy Knabenshue, whose husband is known throughout the country as a dirigible pilot and who is now connected with the Wright Company.

When Rodgers reached the hotel, the manager, beaming with graciousness and hospitality, inquired of him, "Now, what can we do for you, Mr. Rodgers"? Rodgers, still puffing at the cigar which had cheered his automobile ride from the race track, replied, "I would like a glass of cream and a cracker." The manager, who had prepared to furnish all the delicacies of the season, gasped and fell unconscious into the arms of his assistant.

The Board of Trade tendered Rodgers a banquet at the Hotel Maryland, and on that occasion a representative of W. R. Hearst offered him a cup to commemorate his remarkable flight. Rodgers evidently held the opinion that has been prevalent for some time in aeronautic circles and declined the cup.

Rodgers said that more valuable cups were given to winners of insignificant yacht races.

"If he wants to show that he is a true sportsman," said the aviator, "let him renew his offer of $50,000 with the intention that somebody may win the money. His original offer was never made to be won."

The backers of Rodgers have offered a gold cup and bonuses up to $8,000 to the aviator who will break his record of 49 days for the trans-continental flight.

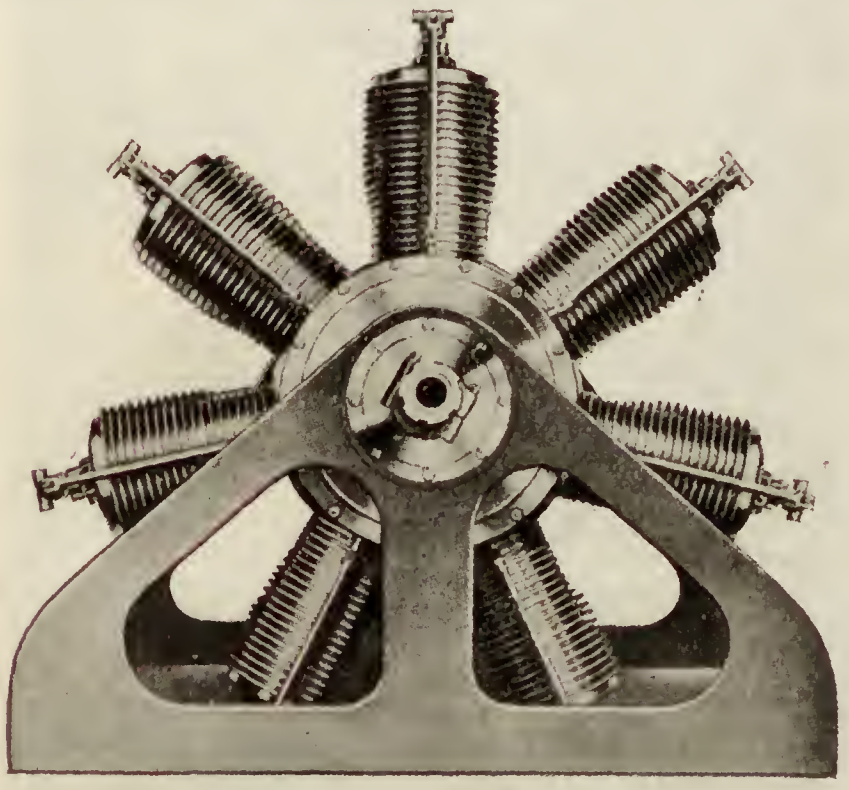
One hundred dollars a day, it was stated, would be given for each day cut from the forty-nine-day record; $500 for each day under 40 days; $1,000 for each day under 35 days.

While attempting to fly to Long Beach, California, on November 12, Rodgers fell when about three miles from his destination. The fall was one of about 100 feet and the aviator and aeroplane landed in a ploughed field. He was badly bruised but no bones were broken. The machine, however, was wrecked.

Rodgers expects to be able to complete the trip and will technically end his trans-continental flight by flying into the ocean at Long Beach.

New Rotary Aero Motor

A NEW air-cooled rotary aero motor has been recently placed on the market by the Hendee Manufacturing Company. For some time this company, which has been building the successful Indian motorcycle, has been experimenting with aeronautical motors with the idea to perfecting a type that will prove satisfactory to aviators, and they have recently placed an example of their most recent product in the Queen monoplane flown by Earle Ovington, who has been using this and it is said will have his monoplane equipped with this motor during his ocean-to-ocean flight.



The Hendee Rotary Aero Motor

The new Indian aero motor is a 50 h. p. engine, which gives 1,100 revolutions per minute. It has seven cylinders of 4⅜ inches bore and 4⅞ inches stroke, which operate on the four-cycle system.

Nickel steel is largely used in the construction of the motor, giving lightness and strength. Complete the motor weighs 185 pounds and its outside diameter is 36 inches.

The inlet valves are of the automatic type, placed in the heads of the pistons, and balanced to counteract centrifugal action. The exhaust valves are mechanically operated, and, as in the case of those, centrifugal action assists in their closing, only very light springs are required.

A feature of the Indian aero motor is its extreme simplicity. Information regarding this motor can be secured by addressing the Hendee Manufacturing Company, Springfield, Massachusetts.

IN the November issue of FLY, on page 17, under the heading "Estimated Distances of Balloons Entered for Lahm Cup," H. E. Honeywell should have been named as the pilot of the "Kansas City II" instead of Frank Jacobs. The latter was the pilot of the "Topeka II."

New Monoplane Type

AFTER many disappointments the three Johnson brothers, Harry, Julius and Louis, of Terre Haute, Indiana, have succeeded in making their first flight in their steel monoplane, equipped with a four-cylinder, 60 h. p. engine built as well by the Johnsons.

Louis Johnson has thus far acted as the aviator and his flights have been reported as successful in every particular.

This new designed monoplane is built entirely of steel and aluminum, except the planes. A new style frame and running gear, built of nickel-steel and aluminum, is claimed to have proven superior strength in many tests.



Johnson Brothers Monoplane

The total weight of the machine is seven hundred pounds. The main planes are 36 feet from tip to tip and are 8 feet wide. The over-all length of the monoplane is 34 feet.

The machine is elevated by depressing the tail plane. The shock absorber is very light and simple, while the center skid is built low to protect the chassis in landing should the wheels give way. The frame acts as the radiator and the tank and the engine are built into it. The taper tube tail is said to offer very small head resistance, while the same is reported regarding the frame.

The engine is a V-type two-cycle motor, weighing 160 pounds and developing 60 horse-power. It is claimed for the solid chrome nickel-steel crank-shaft, which is included in the weight, that it has no vibration. The engine is claimed to be most reliable and its crank-case is 18 inches over all.

Model Supply Catalogue

THE Ideal Aeroplane and Supply Company, of 82-86 W. Broadway, New York City, has recently published a most complete catalog of all parts necessary in model building as well as complete models. Propellers, wheels, axles, bearings, chains and sprockets, turnbuckles, fabric coating, rubber strands, springs, propeller shafts, wood for making ribs, reed and rattan, and in fact all necessay parts are most accurately described and listed in this most useful catalog. With the enthusiasm that is now prevalent in the model clubs of the country, the attention of the Ideal Aeroplane and Supply Company to this description of their products is most timely.

Government Tries New Devices at College Park

Bomb-Carrying Machine Claims Attention

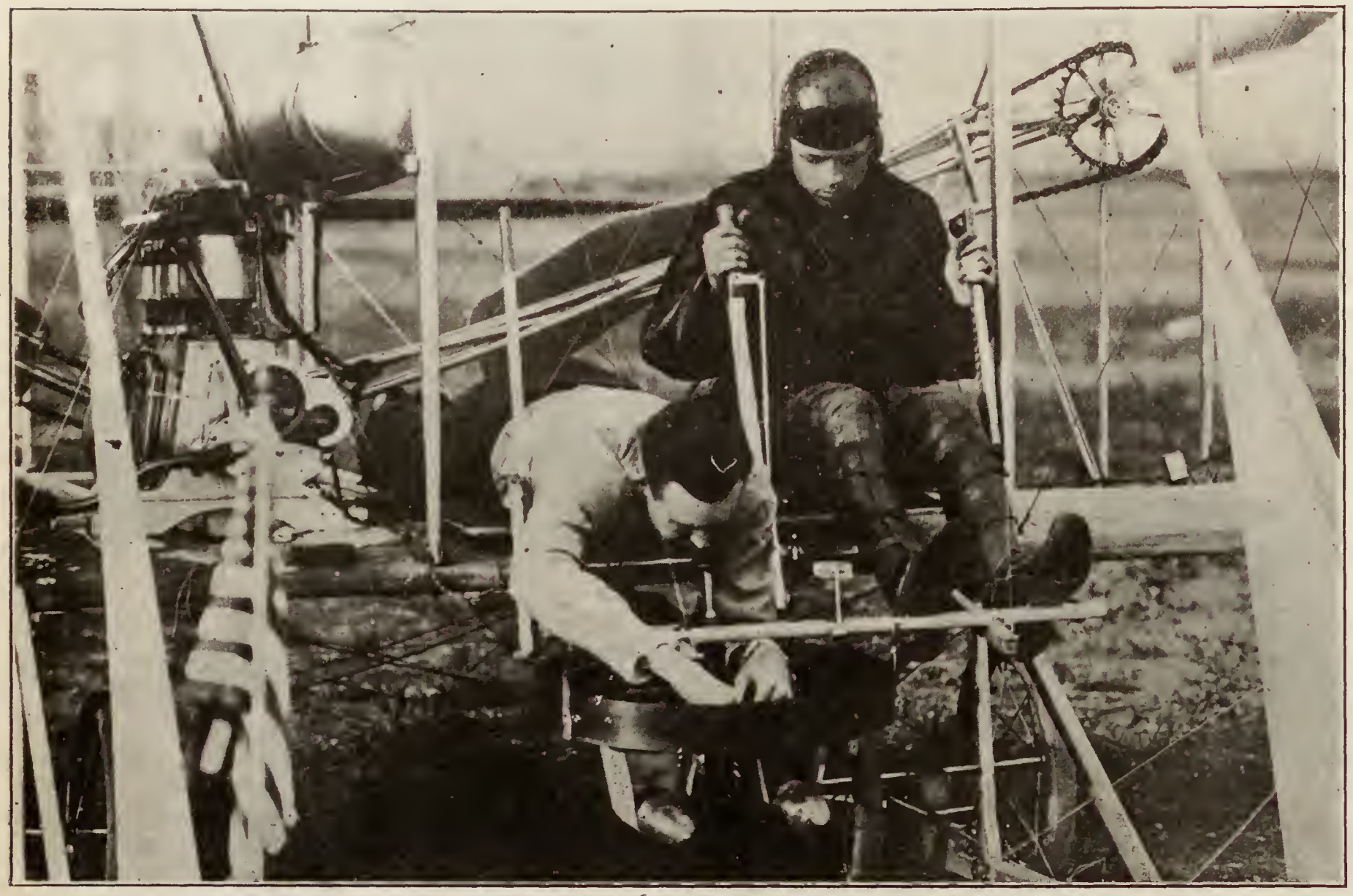


Photo by G. V. Buck, Wash., D. C.

Lieut. Milling at the Controls. Former Lieut. Scott in the position of the operator of the Bomb-Carrying Device

A BOMB-CARRYING device to demonstrate the use of the aeroplane in warfare has recently been completed by former Lieutenant R. E. Scott. During the past month experiments with this device have been carried on at the Government aerodrome, at College Park, Maryland. It is said that the results have been satisfactory and Lieutenant T. de Witt Milling has expressed the opinion that with such a device it will be possible for the Government aeroplanes to destroy any large fort or fortress in the world.

Lieutenant Scott was carried by Lieutenant Milling on several trips, and during the flights 25-pound steel shells were hurled from the bomb-thrower.

On the first trip the shell was aimed at a 30-foot circle and fell ten feet short of its mark. The second attempt resulted more favorably. These experiments were carried on at an altitude of 500 feet while the biplane was moving at the rate of 41 miles an hour. Lieutenant Milling feels confident that accuracy may be had at even a much greater altitude.

The tests were the beginning of a series of demonstrations that are to develop the use of aerial craft in times of war. The weight of the bomb is to be increased until the maximum load that can be carried has been approximated. The margin of lift is roughly computed to be 300 pounds without the passenger, and if this is found to be correct it is figured that a bomb weighing 250 pounds could be carried. Army experts believe that nitroglycerine will be placed in the cartridges, and 250 pounds of this would devastate about three city squares of Washington.

The missile used in the experiments was a type of the usual 6-pound torpedo-shaped shell used in actual warfare by the United States. It is of a blunt-edge variety and has a small arrow on the cap end to counteract any deflection of the wind. Lieutenant Scott claims that wind will make very little difference.

There is a range finder attached to the aeroplane and by means of this height, speed and velocity of the

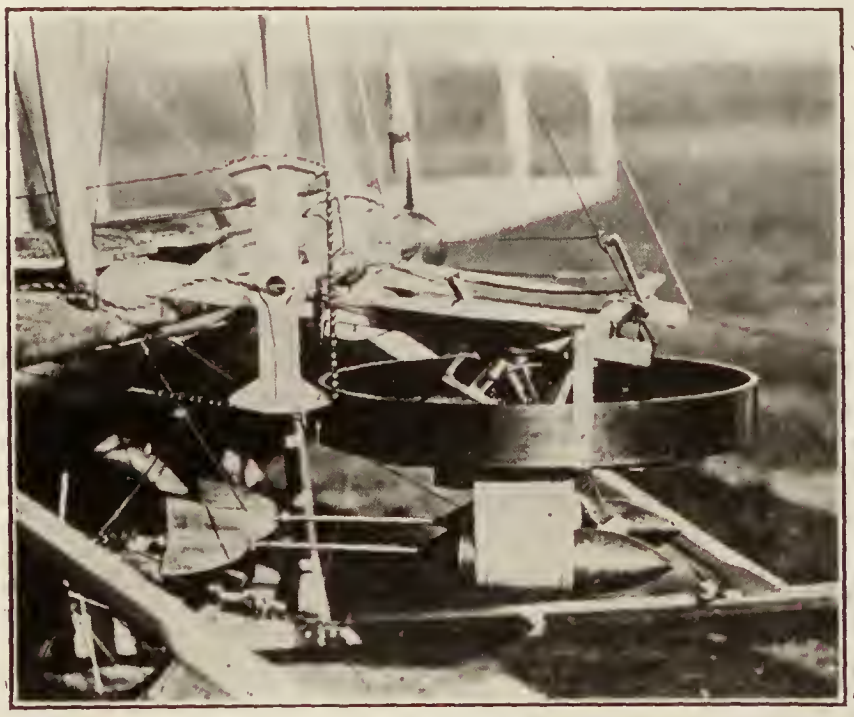


Photo by G. V. Buck, Wash., D. C.
Side View of the Bomb-Carrying Device

biplane can be determined. This mechanism practically resolves bomb-dropping into a scientific proposition and removes it from the realms of theory. It will now be possible to "sight" the dropping of a bomb from an aeroplane in the same manner as one would "sight" or aim a 14-inch gun. Accuracy is a thing that will develop with the progress of the work.



Photo by G. V. Buck, Wash: D. C.
Hole Made by an Aerial Bomb Thrown from an Altitude of 500 Feet

The apparatus is also fitted with an angle-finder, telescopic sight and barograph. The device can be attached to the lower plane of either the Wright or Curtiss machine.

It is believed that no other corps of aviators in the world have studied the possibilities of bomb-dropping as have the officers and men at College Park, and those who are following their work closely believe that another month will place their Aeronautic Corps of the United States Government well in advance of those of other nations.



Photo by G. V. Buck, Wash., D. C.
Signal Device in Action

Lieutenant Roy C. Kirtland and Charles Bowman, a semaphoric expert, have devoted considerable attention to the perfection of a device for sending aerial messages from a moving aeroplane. The invention shoots black smudges into the air, imitating the dots and dashes of a telegraphic code.

Plain lampblack is ejected from a funnel-like affair attached to the leading edge of the upper plane above the aviator. A tank with air compressed to 900 pounds pressure will be carried, and by this force the lampblack is emitted into the air. The result is a large or small puff



Photo by G. V. Buck, Wash., D. C.
The New Army Signal Device

of blackness that is clearly readable to one acquainted with the code.

During the latter part of October, Lieutenant Kirtland flew one mile from the aviation field with the inventor as passenger and black smudges were shot into the air. Two signal corps officers from the Ohio National Guard were present at the experiment. Both understood the signal code and pronounced the messages from the aeroplane perfectly easy to read.

According to Lieutenant Kirtland the device will be of no use to the army in time of war unless the messages can be read at a distance of five miles.

If the device is perfected it will prove of inestimable value in army maneuvers as well as actual warfare.

New Books for the Aeronautical Library

Additional Volumes on the Science of Aviation

(See Fly Magazine *Book Department in the advertising section for the latest and best books on aeronautics.)*

The Story of the Aeroplane, by Claude Grahame-White, is a tale of aviation told in the easy style of the well-remembered Englishman. Beginning with the work of the Wright Brothers, the writer continues to follow the progress of aviation down to the present time. It is filled with many anecdotes and considerable space is devoted by the author to relating the story of his early beginnings in aerial navigation. Certainly. "The Story of the Aeroplane," is a most interesting volume and coming from the pen of such a famous aviator, should prove a valuable contribution to aeronautic knowledge. Many of the early accidents are referred to in this volume and a discussion of their causes is taken up at some length. Many interesting deductions are made and important facts are brought to light. The future of aviation and its commercial possibilities are subjects treated intelligently and in a vital manner. The book is profusely illustrated with half-tones, well-printed and bound in cloth. Price by mail $2.20.

Natural Stability in Aeroplanes, by W. LeMaitre, is a most interesting manuscript on the much discussed subject. While many minds are working to accomplish a device that will furnish automatic stability, this writer presents his views on the subject of inherent stability. Many aviators have long ago discarded the theory of automatic stability and the ideas expressed in the pages of this book will no doubt find many ardent supporters throughout the country. It is stated in the preface that the writer has made no single statement that he cannot prove by experiment while the arguments and illustrations are convincing in themselves. The book is a timely and sensible discussion of a subject that is of vital interest to the aeronautic world. Price by mail, 65 cents.

Jahrbuch über die Fortschritte auf allen Gebieten der Luftschiffahrt, by Ansbert Vorreiter, 8 vol., cloth, 500 pages and 641 illustrations, with many tables. Published by J. H. Lehmann's Verlag, München, Germany.

One of the best books of its kind in recent years has been completed and published by Herr Vorreiter. It is a storehouse of information and contains much reliable matter on all subjects included under the general head of aeronautics. The dirigible balloon and its construction, together with scale drawings, is a most important section of the volume, while the treatment of the foreign as well as American makes of aeroplanes is a part of the book that deserves especial commendation.

The contents include: Die Luftflotten der Kulturmächte, Die erfolgreichsten Flugmaschinen der Gegenwart, Motoren für Luftschiffe und Flugapparate, Gleitflieger und Drachen, Der Freiballon und Fesselballon, Luftschiffhallen und Häfen, Fortschritte in der Erzeugung von Ballongas, Waffen zur Bekämpfung von Luftschiffen, Flugplätze und Flugfelder, Fortschritte der wissenschaftlichen Forschung auf dem Gebiet der Luftschiffahrt und Flugtechnik, Anhang zum wissenschaftlichen Teil, Die bedeutendsten deutschen Patente auf dem Gebiete der Luftschiffahrt (Klasse 77 h.), Der Flugsport, Vereinswesen, Bezugsquellen-Verzeichnis.

Les lois expérimentales de l'Aviation, par Alexandre Sée, ancien élève de l'Ecole Polytechnique. Un volume de 348 pages illustré de 149 figures. Prix: 7 fr. 50. Librarie Aéronautique, 40, rue de Seine, Paris.

L'ouverage comporte cinq grandes divisions: les Lois de la résistance de l'air, la Théorie de l'aéroplane, le Vol des oiseaux et le vol à voile, l'Etude de l'hélice et le Problème de la stabilité.

L'auteur n'a pas cherché à établir des lois et des théories par le raisonnement. Après avoir montré le danger des raisonnements *a priori* en aérodynamique, ainsi que les difficultés de l'expérimentation, il expose les expériences les plus sérieuses faites sur la résistance de l'air, et les lois purement empiriques qui les résument. Il applique ensuite ces lois à l'aéroplane, et à l'étude des vitesses, du travail, du poids utile enlevé et des régimes de marche.

The contained manuscripts are among the most valuable ever produced in the French language, and one is brought to realize quickly the immense value of the experiments of Langley and the work of Soreau upon the questions treated therein.

Why Varnished Balloons are Superior to Rubber

By Captain H. E. Honeywell

(Pilot of the "Kansas City II," which is said to have covered 498 miles in the recent contest for the Lahm Cup, started from Kansas City.)

BOTH the National and International Balloon Races, starting from Kansas City in 1911, prove my assertion that varnished balloons are superior to rubber balloons for racing, to say nothing of their success over rubber balloons in previous contests.

These varnished balloons sell for less than half the cost of rubber bags and are used by everyone at all times for qualifying pilots, etc. The rubber bag is reserved for races only, being too expensive for local work, but the former are entered into contests irrespective of condition and win out nine times out of ten. In the National Contest of 1909 a varnished balloon won first money; in the Centennial Contest of 1909 varnished balloons won second, third and fourth money; National Contest of 1910 they won second place against three rubber balloons; National Contest of 1911 they won first, second and third money against two rubber balloons; lastly, and the most decisive victory, was October 5, 1911, when (as a non-contestant) one whipped the entire field of International rubber balloons, and that is not all. Several of the large International rubber birds failed to weather the storm and were driven to earth at night, while every varnished balloon, including Mr. Arthur Atherholt, with his small half-size balloon, non-contestants or otherwise ("Condor III"), all stuck through the entire night, or for about nine hours, in cold drenching rain, sleet and snow, all landing on account of reverse air currents.

The "Kansas City II" sacrificed most of her ballast forcing her way up through the storm, attaining an altitude of 10,700 feet, encountering fine hail and a temperature of 5° above zero at 2 o'clock in the morning. Now right here is where the varnished fabric has a decided advantage over the rubber goods. In descending from the high cold altitude our gas began to expand rapidly (due to warmer temperature), thus checking our descent at about 5000 feet without throwing ballast. We maintained this altitude through the entire trip. Had we been unfortunate enough to have had a heavy rubber balloon, we would have been precipitated to earth without question, due to extremely retarding change of temperature-non-expanded gas, as proven by several forced landings of large rubber balloons early in the game.

Detroit Aeroplane Company Engine for 1912

FOR the past three seasons it has been the practice of the Detroit Aeroplane Company to incorporate the results of their improvements and research in a new yearly model. Recently the company has announced their 1912 model.

While the chief difference between the 1910 and 1911 models was noticeable from their outside appearance, the new 1912 model power plant distinguishes itself from its predecessors through constructional and internal changes.

To judge from the appearance the new model has many advantages. The omission of cap screws by replacing same through machined bolts locked with castle nuts and split key is decidedly an advance. In fact in the present type there is not a single nut that remains unsecured.

Another constructional detail is the introduction of chrome nickel steel as crank shafts and steel alloy as connecting rod material. This change was made necessary through the additional power and speed gained by the use of higher compression. The additional heat developed by the more instantaneous combustion was compensated through arrangement of auxiliary holes in the cylinder walls and the necessary change of the valve timing, which is now slightly overlapping. It is a well-known fact that auxiliary holes have a certain unwelcome reaction on the lubrication, and therefore one will find on the new model an oil pump driven from the cam shaft and feeding the cylinder from a lubricating supply in the tank.

The power plant itself develops according to the manufacturer's 28-brake horse power, and when equipped with a 7-foot diameter, 3¼-foot pitch, propeller delivers a stationary thrust of 250 to 260 pounds at 1100 R. P. M. These propellers are copies of the Chauviere type and are made by an automatic machine at the rate of four every genious and deserves attention.
and deserves attention.

The original propeller is cut in two; and one-half is casted in aluminum. This aluminum half acts as a master propeller, and from it are made, first, the right halves, then, by turning it around 180 degrees, the left halves of four propellers are made at one time. This method insures absolute correctness of both halves and when the propeller leaves the table it is mathematically balanced, provided the material is homogeneous.

The company is giving, during the winter months, exhibitions throughout the United States and Canada.

During November the engine has been demonstrated in New York, Philadelphia, Boston, Baltimore and Washington, D. C.

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Advertising rates will be furnished on application.

By the Way

WHILE carrying on experiments with a glider on October 31, Professor John J. Montgomery met with an accident which resulted in his death. The profound researches in aerodynamics made by this famous inventor are of the greatest importance, and it is to be regretted that he had given very little information regarding his results to the outside world. His work with gliders antedates some years the experiments of Otto Lilienthal, who met his death in a glider in 1896. Both, however, must be placed in the foremost rank as daring and persevering men who gave their lives in devotion to the science of aviation. Those who have come after have more or less followed in the footsteps of Montgomery and Lilienthal. Alexander Graham Bell is quoted as saying that "All subsequent attempts in aviation must begin with the Montgomery machine."

THE entrance of the aeroplane into actual warfare has occurred. In Tripoli the Italian forces have already in use seven aeroplanes, and aviators for scouting purposes and for messengers. Lieutenant Rossi has made several successful flights over the Turkish army and brought back valuable information regarding their position. In fact the Italian generals give most of the credit for their victories to the work done by the aviators. A short time ago an aeroplane was maneuvering over the Turkish troops when the motor stopped. It was flying, fortunately, at a considerable height and the aviator was able to glide to safety within the lines of the Italian army. The planes of the monoplane were found to be perforated with bullet holes. Despite the jeers that have been hurled at those who have advocated the usefulness of the aeroplane in warfare, there seems to be good grounds for believing that the outcome of future wars will be largely dependent upon the efficiency of the aerial fleets of the countries involved.

THE competitive meets held during the past season in America have, for one reason or another, failed to become financial successes. A continuation of these tournaments on the scale of those held during 1911 is no doubt dependent upon proper returns to the promoters. As these meets result in a general dissemination of knowledge and arouse enthusiasm they are to be encouraged and should be continued. However, we are of the opinion that in a general way too much money has been expended unnecessarily. In several cases a considerable sum might be accounted for by ground improvements and possibly another neat account might be charged to guarantees. In view of the fact that America now boasts of more than fifty capable licensed pilots, it would seem that if money has been expended for guarantees it was unnecessary. At Nassau Boulevard the distance to the aerodrome handicapped the attendance of the general public and meet managers must surely realize that it is to this class that they must look for the real profit. The attendance of the wealthy in automobiles or by train does not begin to equal the returns that could be secured if the aerodrome were located within the limits of a five or ten-cent trolley fare, where working people could come and secure admittance for a quarter. The question of an aerodrome within these confines is undoubtedly hard to answer within the limits of a large city, but it certainly should be a place accessible by trolley and at a cheap rate.

Another expensive feature of the meet is the prize money. Certainly the aviators should be willing to fly for a percentage of the gate receipts, especially when the meets are held near large cities like New York, Chicago and Boston. This would enable the management to at least come out even on the expenses and would probably prove as profitable for the aviator.

In the October issue of Fly, Israel Ludlow has suggested a method of crediting aviators with points and this might prove a solution of the problem. Mr. Ludlow also pointed out a means that might be made use of, for securing aerodromes near large cities as well as elsewhere. In any event it seems certain that there must be a readjustment of the present system of operating aviation meets, and we believe that with the admission price placed within the reach of all and with the transportation cost reduced to a minimum, the aviation tournament will find more favor with the general public than ever before.

John J. Montgomery Falls to Death in Glider

Noted Authority Meets Lilienthal's Fate

NO greater loss has been occasioned aviation in the past decade than the one which occurred on October 31, 1910, when Professor John G. Montgomery received fatal injuries as the result of a fall from a glider while experimenting near Santa Clara, California.

The only rival to the honor and credit accorded the Wright Brothers for their inventions was Professor Montgomey, and there are those who believe that the claims of Montgomery cover the claims made by the Wright Brothers. That, however, is a matter for the courts to determine.

On October 31, Professor Montgomery was experimenting with a glider in the foothills about two miles north of Evergreen. He had made a number of successful flights, as had also J. C. Vierra, one of Montgomery's assistants. Mrs. Montgomery, a bride of less than a year, was present and was watching closely the flights of the glider.

According to Mrs. Montgomery the machine was not more than twenty feet from the ground when her husband apparently lost control of the glider. The appa-

ratus whirled about and before the operator could again gain control of it, it had crashed to earth. The Montgomery glider is so constructed that it has been supposed that it would right itself in falling and thus avoid the accident that resulted fatally to Professor Montgomery.

Examination of the injured man showed that he had sustained a compound fracture of the skull and internal injuries. Dr. J. I. Beattie had been summoned by telegraph from Santa Clara as soon as the accident had occurred. He reached the foothills by automobile, and in this Professor Montgomery was brought back to Santa Clara. About one hour and a half after reaching that place he breathed his last. Professor Montgomery remained conscious up to the end and spoke coherently to Dr. Beattie a few moments before he passed away. He died in his wife's arms. Everything that medical attention could devise had been done, but by the time Professor Montgomery had been brought to his residence at Santa Clara it was seen that he was slowly sinking and hope was abandoned.

As early as 1884, Professor Montgomery had built gliders and his deductions from these early flights, after being reduced to formulae, resulted in the glider "Santa Clara," which was given a public exhibition flight on April 29, 1905.

The greatest flights made by these gliders were between 500 and 600 feet. The machines used weighed 30 pounds, while Professor Montgomery weighed 130. Experimental work was continued until 1894, and then he began experimenting with the glider which resulted in the remarkable glide from an altitude of 4,000 feet. This glider was called the "Santa Clara," and before an audience of the interested public and newspaper men this first public flight was made.

In appearance the glider consisted of a light hickory frame-work, held together in sections by light piano wire fastened to the wings. It was covered with a thin fabric and measured 24 feet from tip to tip. The surface area was about 185 square feet. The machine weighed 42 pounds and the aviator tipped the scales at 156.

On this occasion the glider was attached to a balloon and was carried with its operator to a height of about 4,000 feet, where it was cut loose from the balloon. Witnesses assert that the descent was a most remarkable one. All sorts of evolutions were performed by the operator and the speed of the machine exceeded more than sixty miles an hour at times. After a flight lasting about twenty minutes the machine came to the ground with scarcely a jar. It had covered more than eight miles and had descended at a designated spot in a field to the southeast of the college grounds.

Reports of the event were so exaggerated that Professor Montgomery apparently became disgusted, and since that time but very little has been printed concerning his work.

At the time of his death, Professor Montgomery was fifty years old, and had been for the past seven years in charge of the physics department of Santa Clara College. He was recognized as one of the leading authorities in electrical and chemical teaching.

News of the tragic end of the famous man cast a gloom over Santa Clara county, where he had been known by everybody. He had been an authority on aerial navigation ever since the first elements of the science developed into pratcical results. He had done most of his experimenting in a little hamlet called St. Leonard's, located in the Santa Clara Mountains to the west.

Professor Montgomery always deprecated the wild speed of aviators and had warned them that they were not making scientific progress by either arising to great height or flying at great speed.

Several months ago he was married at the mission town. Though frequently referred to as Father Montgomery, he was not a priest but a lay brother.

National Council Dissolves

ACCORDING to one of the New York newspapers, the National Councils of the Aero Clubs of America, has been dissolved.

The Latest Engine Product of E. W. Roberts

New Two-Cycle Motor Has Many Advantages

THE service required of a motor for artificial flight, especially in an aeroplane, is the most arduous imaginable. Therefore the motor that is best for an aeroplane is one that can be depended upon at all times. In the selection of a motor, simplicity and a minimum of working parts without loss of effectiveness in other ways, is of great importance, as the simpler it is and the fewer the working parts the less is the liability of the machine to get out of order.

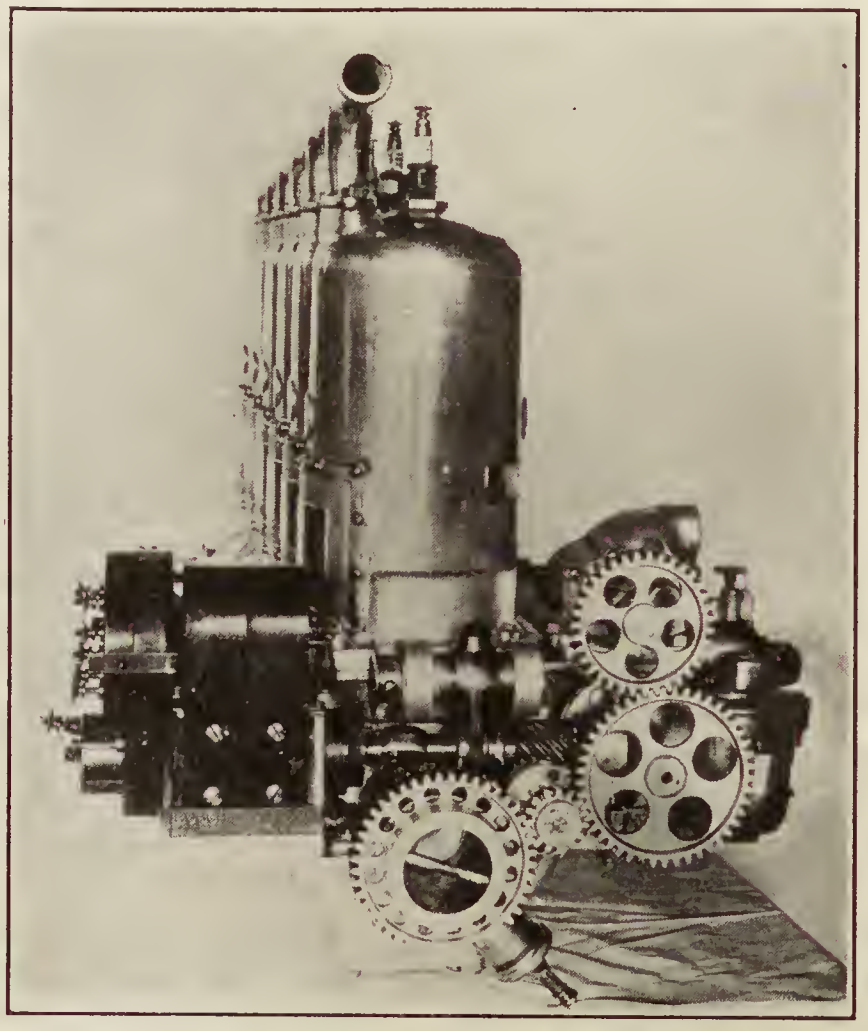
Safety in flight depends more upon the reliability of the motor than on any other one thing, and the manufacturers of the Roberts Aviation Motor have so designed and constructed it that it seems to insure the owner against the remotest possibility of a breakdown. The motor is sufficiently light for practical flying and yet has a greater margin of safety than many motors of the same actual horsepower weighing three times as much.

The Roberts Aviation Engine is a two-cycle motor and is the latest production of Mr. E. W. Roberts, M. E., long recognized as the leading authority on gasoline motors and a pioneer in aeronautics. Mr. Roberts was, in 1894 and 1895, chief assistant and designer for Sir Hiram S. Maxim on his famous experiments in England, and during the building of the largest aeroplane yet constructed.

The general appearance of the motor is shown in the accompanying half-tones. Measuring from the gear end of the 4X to the thrust bearing the motor is seen to go in a space less than fifteen inches wide by thirty-four inches long. The width of the 6X is the same and the length only twelve inches more. The actual weight of the motor complete just as illustrated, with the exception only of the propeller and the propeller hub, is just 170 pounds for the Model 4X and 225 pounds for the 6X. We call attention to the fact that this is not a stripped motor, but that the weight includes the carbureter, the magneto, the grease cups, the spark plugs and the wire.

In construction the Roberts Motor is unique. The mixture of gasoline vapor and air, instead of entering the base through a port in the cylinder wall, opened and closed by the lower end of the piston, is admitted to the base through a hollow tubular valve, driven by gears at the same speed as the crankshaft. By the use of this valve a positive control of the inlet timing is obtained and the cylinders are free of an intake manifold. The valve gives a perfectly even distribution of the mixture to the different cylinders.

A gear pump of extra large capacity gives a rapid circulation of the cooling water, and adds greatly to the efficiency of the radiator. The water is carried through a passage cored in the crankcase itself and from this passage it is distributed to the cylinder through passages cast in the cylinder walls which meet the passage in the crankcase at the cylinder flange. The water jacket on the cylinders is carried down below the exhaust ports and therefore distortion of the cylinders due to uneven cooling is avoided. The water leaves the cylinders through a manifold on top of the cylinders and not at the side as in some designs. This system of cooling insures against overheating and is one of the reasons why the Roberts Motor may be run continuously without distress.



Roberts Aviation Motor—Model 6X
Showing the gear end of the six-cylinder, the magneto drive and advance mechanism

The cylinders themselves are unusual in being cast from a special alloy named "Aerolite," and which, while no heavier than pure aluminum, has double the strength of the average alloy of this metal. To be more explicit, Roberts' "Aerolite" has a specific gravity of 2.7 and a tensile strength of 38,000.

The great density of Aerolite gives it excellent wearing qualities and the surface of the cylinder bore shows less wear than cast iron and no tendency to cut. The coefficient of friction of Aerolite against the cast iron piston is lower than for iron on iron and therefore the piston runs more freely in Aerolite cylinders than in those of cast iron. Aerolite is made by a secret process and is used on Roberts Motors only.

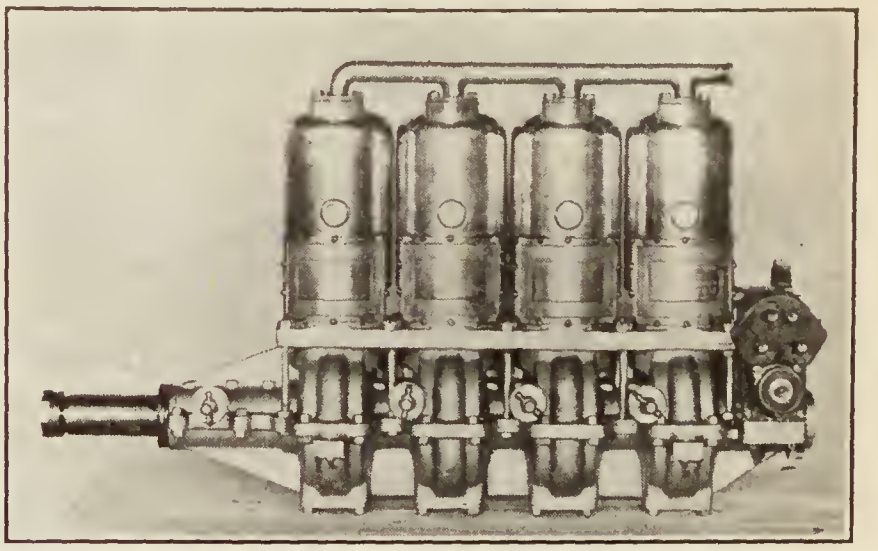
The crankshaft of the Roberts Motor is, we believe, larger in diameter (2½") than any other motor of the same bore and stroke. This shaft, while over 40 inches long, weighs when completely machined just 17½ pounds. This light weight is secured by boring the center from the shaft and taking off every ounce of material not actually required for strength. Light as it is, the shaft is stronger than many solid shafts of three times the weight. While the shaft was figured carefully to have ample strength if made from open hearth steel, it is made from 3½ per cent. nickel steel, showing a tensile strength of 120,000, and it is double-heat treated to remove all forging strains.

The ordinary method of magneto advance, that of turning the circuit breaker, is peculiar in that it gives the maximum strength of spark in only one position of the advance. To get the hottest possible spark, the circuit through the coil of the magneto should be broken just when the armature of the magneto swings past the pole of the magnet, this being the point where the current being generated is the greatest. On either side of this point sparks of lower intensity are obtained, and the farther away the break from the peak of the current wave, the weaker the spark. Hence with the ordinary method of advance when the magneto is so set as to give the hottest spark at the normal speed and advance, retarding the spark for starting brings the break at a point of low intensity, and a weak spark results. Every operator knows that an engine starts easier with a hot spark than with a weak one. Hence, for starting, the operator is inclined to advance the circuit breaker to get a hotter spark. This will often cause the motor to "kick back" (reverse) with great danger to the operator.

This is avoided in the Roberts Motor by advancing the magneto drive. The magneto is driven by a pair of helical (spiral) gears, and by sliding one of these along the other the shaft of the magneto is turned in relation to the position of the crankshaft. The position of the circuit breaker on the magneto is fixed so that the circuit is opened at the peak of the current wave no matter what the advance and the hottest possible spark is obtained at any position of the timer lever.

The speed of the motor is indicated constantly by a tachometer attached to the end of the pump shaft. Hence the tester can read both the speed and the thrust at any time during the test. Both the spring balance and the tachometer are carefully calibrated before and after each test.

The standard testing propeller employed for the 4X motor is eight feet diameter and five foot pitch and has a blade twelve inches wide. Not a Roberts Motor is passed as ready for shipment until it has run this propeller at least 1000 r. p. m. for not less than five consecutive hours without overheating or missing. At this speed every 4X motor must show not less than 350 pounds thrust, and every 6X motor a proportionate amount on a propeller of six foot pitch.



Roberts Aviation Motor—Model 4X
Reverse side of the four-cylinder engine

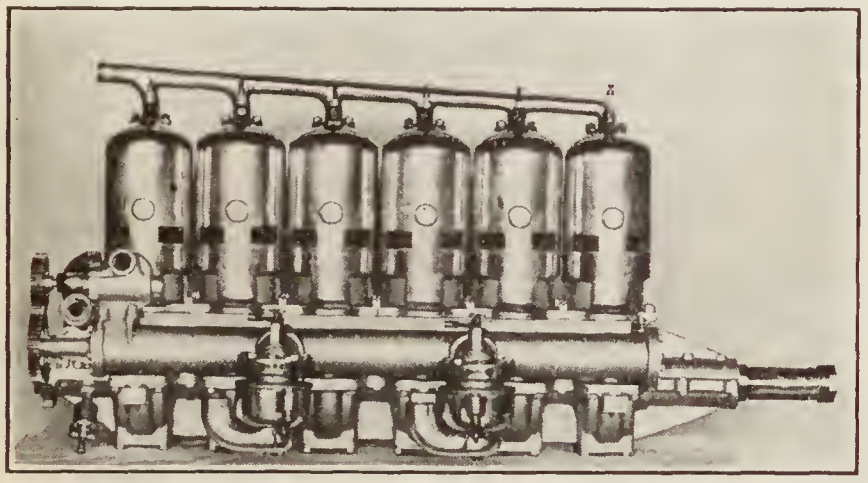
In the Roberts Motor the walls of the cylinders are 3-16" thick and are of material 80 per cent. stronger than the average of cast iron, and the factor of safety is 25. In this part, the gain in weight is accomplished by the use of a material but little more than one-third the weight of cast iron.

In the crankshaft the factor of safety runs from 25 to 32, according to the part of the shaft considered. The gain in weight in the shaft is brought about by both design and the choice of the material, which is much stronger than that usually employed for this purpose.

To insure that no part will come loose, every bolt and nut on a Roberts Motor is locked in some way. The nuts on the crankcase bolts are prevented from turning by riveting the ends of the bolts or the studs. The nuts on the cylinder bolts are castellated and locked with cotter-pins. No amount of vibration can shake any part loose.

The convenience of the operator has been most carefully studied, both as to control, as already described, and in the matter of accessibility. Any part of the motor may be easily removed without disturbing more than one or two of the other parts. The cylinders have nothing attached to them but the water manifold, and after this is removed any cylinder may be taken off without disturbing any other part of the motor. The handholes on the bottom of the base may be easily opened, giving ready access to the connecting rods for adjustment. Removing five cap-screws allows the cover on the end of the valve cage to be taken off and the valve may then be pulled out without disturbing any other part, as the driving stem is separable from the valve body. The pump gears are easily exposed by taking the cover off the pump. Every other part of the motor is where it can readily be seen. This does not mean that the motor may require frequent repairs or adjustment, but the careful operator is sure to watch every part, and should be able to do so without inconvenience.

The power rating of the Roberts Aero Motor is neither arbitrary nor fictitious. The 4X motor develops 46 actual brake horsepower at 1000 r. p. m. and 50 H. P. at 1100. The thrust at 1000 r. p. m. with a propeller of five foot pitch is 380 pounds, and at 1100 r. p. m. the thrust is 420 pounds. The motor will develop 55 H. P. at 1200 r. p. m. and may be run without damage or overheating at 1250 if desired. On the basis of 50 H. P. the motor weighs but 3.4 pounds per H. P. and the thrust per pound of weight is 2.45 pounds. This is about one pound more thrust per pound of weight than the average and is ample to fly an exceptionally large plane. The motor is light enough to meet the requirements of the small one-man aeroplane and powerful enough to fly a machine carrying several passengers.



Roberts Aviation Motor—Model 6X
Carbureter side of the six-cylinder 75 horse-power motor

For those who feel that they must have more power than is given by Model 4X, they offer a six cylinder of the same general design and the same bore and stroke, Model 6X. The weight of the Model 6X is 225 pounds complete and the motor develops 69 H. P. at 1000 r. p. m., 75 H. P. at 1100, and 82 H. P. at 1200. On the basis of the power at 1200 r. p. m., which is by no means an excessive speed, the weight of the 6X is 2¾ pounds per H. P. The thrust given by the 6X is in direct proportion to that of the 4X, and is 600 pounds at 900 r. p. m. and 675 pounds at 1100.

The success of Joseph Richter, Tom Benoist, S. D. Dixon, H. W. Powers, H. O. Hadley, L. M. Driver, Willie Haupt and other aviators, not one of whom has failed to fly with his Roberts Motor, is proof of Roberts reliability.

The Roberts Aeroplane Motor is furnished complete as follows: Fitted with Bosch magneto, Bosch magneto plugs, wire, carbureter and aluminium grease cups, and supplied with propeller and steel propeller hub, one or two radiators, as specified by customer, radiator hose and hose clamps, propeller puller, wrenches, etc.

The Roberts Motor Company of Sandusky, Ohio, are the builders of this unusual and successful two-cycle engine, and they will gladly furnish information to all who address them.

Mann Model Monoplane

By William P. Dean

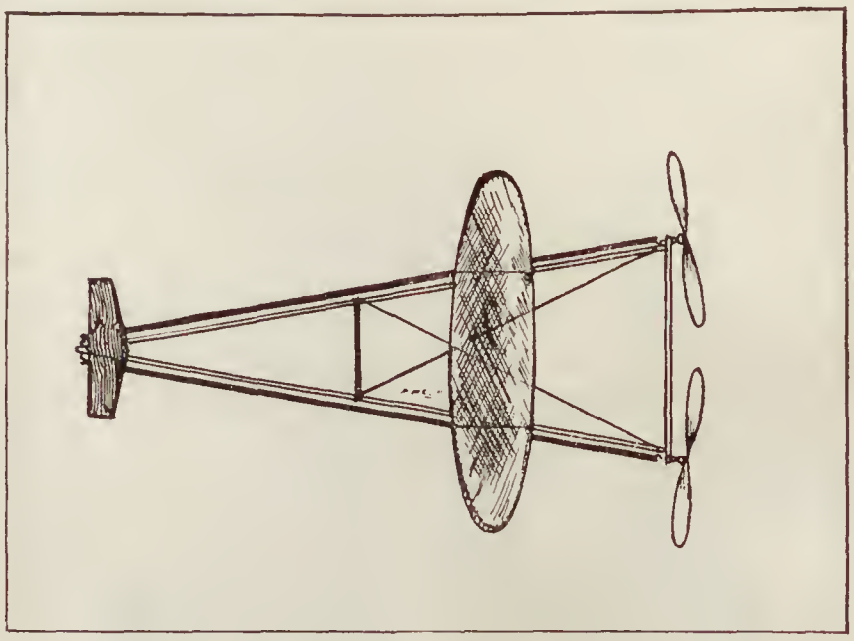
EDITOR'S NOTE: *Both Mr. Ridley and Mr. Mann are members of the Arundel House School Aero Club, Surbiton, England. This is significant as they both seem to be experimenting along the same lines.*

THE fusilage of the Mann model is made of ¼-inch square silver spruce. The two longer sides are 34 inches long and 8 inches apart at the base. This frame is made rigid by steel wire bracing.

The main plane is constructed of piano wire and has but 2 ribs only, and is covered with waterproof silk.

The elevating plane is 7 inches long by 1¾ inches wide. It is made of 1/3-inch silver spruce.

The propellers are made of thin birch 8 inches in diameter with a 24 inch pitch. They are steamed to shape.



Mann Model Monoplane

Steel bearing shafts fitted with the familiar fraction washers are used on the propellers. The motive power is rubber strands ¼-inch in diameter; six 30-inch strands are used. Over a thousand turns can be given. Speed 750 revolutions per minute. The flying speed in a calm is approximately 18 miles per hour. Aided by the wind nearly twice this speed has been attained. The screws, elevating plane, and the fusilage are covered with the best shellac varnish.

The total weight of the model is 4 ounces.
Awarded 16 prizes in public competition.
World's record distance 2685 feet.
Duration 82 seconds.

Balloon Race Figures

FIGURES compiled by the United States Geographical Bureau have been given to the Aero Club of America to be used by the International Aeronautic Federation in recording the International Balloon Race of 1911. They are as follows: Lieutenant Gericke, "Berlin II," 471 miles; Lieutenant Lahm, "Buckeye," 408 miles; Lieutenant Vogt, "Berlin I," 350 miles; John Berry, "Million Population," 293 miles; W. F. Assman, "America II," 275 miles; Emile Dubonnet, "Condor III," 200 miles.

The Diary of An Aviator

The Experiences of a Youth Who Knew All About Aviation

By Henry M. Neely

(*This story began in September issue of* FLY.)

August 1st.

I am just getting about with a crutch. Have been home with my family three days and it sure seems good. Much more comfortable than Mineola and the associations are so much better for a man of my class. Those mechanics who are dabbling in aviation and faking all over the country are a low lot anyway. I'm glad I didn't get mixed up with them. Father doesn't agree with me about this for some reason or other. He has been down to Mineola a great deal lately getting my bills paid and trying to sell the wreck of my machine. He seems quite enthusiastic over some of those fellows—says old Captain Baldwin is a prince and all that sort of thing. Doesn't even seem to change his opinion when I tell him the captain tried to discourage me about going out for those contracts. Says maybe the captain was right.

August 3d.

Getting about fine now. Told father today that if he would buy me a Nieuport monoplane with a 100 H. P. Gnome I could make them all look sick. Father only smiled. Can't understand him at all.

August 5th.

Father has all my bills paid, so I went down to Mineola with that cad Perkins in his machine. Father paid Perkins, too. Big crowd there, but the usual lot of ordinary flying. Two or three of the fellows flew over to Nassau Boulevard and we followed in the machine. Saw a lot of punk work there—about a dozen or more machines and a big crowd, but nobody seemed to recognize me for some reason or other.

Met some of the officials of the Aero Club of America. Very exclusive lot, I should say. Heard 'em talking and one chap mentioned something about the National Council.

"What is the National Council?" I asked.

Then another fellow corrected me.

"You don't mean what IS the National Council," he said. "You mean what WAS the National Council."

"By God," said the first chap, "you're right—absolutely right. What WAS the National Council?"

Then they all laughed as though it were a good joke. I couldn't understand it at all.

August 6th.

Mineola again for the Sunday flying. Met a chap who used to be a member of this National Council I heard about yesterday. Asked him what it was.

"Only the Lord and Clifford Harmon know that," he said.

"What happened to it?" I asked.

"Only Duffy knows that," he said, and walked away.

Guess I'll drop this National Council. Everybody else seems to have dropped it.

August 12th.

All right again and able to walk without crutches. Went to Mineola and started to tell one young novice there about some mistakes he made in handling his machine in the air. I thought he was benefiting by the advice I was giving him until he asked me how I had met with my accident. I began to tell him about the trick that had been played me when I had a rotten machine unloaded on me, but he just laughed and left me. It made me hot, I tell you. Some of these days I'll show these fellows.

Saw Kruckman and Fanciulli there. Might have given them some valuable pointers, if Kruckman hadn't asked me when I was going back to work in Taylor's office. That's impudence, I think. A man who has been as prominently identified with the science of aviation and who has done as much for its development as I have isn't likely to sell bonds for a living. No, sir; I'll show them yet.

August 13th.

Nassau Boulevard again. Went down with Perkins, but I would have come back on the train if it hadn't been so unhandy. The cad actually said he expected to see me back in the office before long. I can't make up my mind whether it is the Wright or Curtiss bunch that is trying to get me out of the game. I know Fanciulli's brother is manager for Curtiss and a lot of Perkins' friends have stock in the Wright Company, so I guess they are both after me.

The worst of it is, they seem to have reached father, too. Spoke to him again last night about that Nieuport monoplane, and he actually advised me to leave aviation to people who could fly. I'd leave home if I had the money.

August 26th.

Saw a lot of smash-ups on the field today. It is becoming more and more apparent to me that the aeroplane is only a toy and that it will never amount to anything. Father has refused point blank to give me any more money to waste on it. I guess he is right. Besides, there are such a lot of fakers in the game now that it will not do for me to be mixed up in it. These fellows have so little conscience that they slam any old kind of a machine together, make a few flights around the field here and then fool the public by signing contracts and trusting to luck to make good. I don't call that honest. Of course, most of them give the people some sort of flight, but that is only their luck. I would have gone out on a different basis. I would have given people something really worth paying for if it hadn't been for the dirty

tricks that have been played on me by fellows who knew that I would spoil their graft, if I ever got started.

August 27th.

Nassau Boulevard and Mineola again. I'm getting very tired of the self-satisfied bunch of men who are flying nowadays. They don't seem to realize my position in the science at all, and I find that most of the newcomers pretend that they never even heard of me. I hate to give up with the Wrights and Curtiss fighting to down me and I wouldn't if father would only show a spark of paternal loyalty. But he won't. Actually suggested, rather strongly, that it was time for the bond business to be getting good again. I call that ungrateful. I was beginning to make his name famous and would have made him immortal, if he hadn't allowed himself to be won over by my enemies. He'll be sorry some day.

September 2d.

Would have gone down to Nassau Boulevard today, but I had to clean up a good deal in some new bonds for Mr. Taylor. May get down next Saturday, although business in the office is getting pretty brisk and I won't have much time to throw away on the bum amateurs that are killing the science nowadays.

Besides, the game's about played out. There isn't anything to aeroplanes that's of the slightest value to man. They are only the flimsiest kind of toys. And, until the personnel of the men who are flying them is improved wonderfully, it isn't the kind of thing that a reputable business man can get mixed up in.

Maybe I'll go into it again some day, if conditions improve. But just at present it's out of the question. I'm too busy at the office.

(The End.)

Aeronautic Show

Announcement has been made that the Aero Club of America will hold an aeronautic show in the Grand Central Palace, New York, May 9th to 20th, 1912. It is also stated that the club has under consideration aeronautic competitions of a nature and on a scale never before seen in this country.

Secretary G. F. Campbell Wood sailed on the "Kronprinzessin Cecilie" on November 14th, to represent the United States at the annual meeting of the International Aeronautic Federation at Rome, November 25th to 30th. After the Federation meeting Secretary Wood will visit Vienna, Berlin, Paris, Amsterdam and London, to procure exhibitors for the Aero Club show. He expects to interests the aero clubs in addition to the manufacturer of machines and aeroplane accessories.

A FEATURE of automobile week at Savannah this year is expected to be the addition of an aeroplane meet. It is planned that the flights shall take place during the races. Hugh Robinson and Beckwith Havens are among those slated to appear.

Aeroplanes in War

THE aeroplane made its debut into actual warfare on October 23, when Captain Piazzi, of the Italian army, in a Bleriot monoplane, made a reconnaissance over the harbor at Tripoli and out over the outposts.

The Arabs are said to have regarded the flight with terror and that nothing has produced such an effect on the masses as this flight. In the evening Captain Miozo in a Nieuport monoplane flew over the town and neighboring oasis. Upon landing he stated that he encountered violent currents of air when he flew under 600 feet.

Captain Piazzi stated that when flying over the sea he experienced no difficulties, but that when he passed out over the desert he had to struggle against all sorts of violent currents. He said that when at an altitude of 1000 feet he could see the people and the ground beneath him, but that at a greater altitude all disappeared in a mist.

The following morning both men went out on a scouting expedition and located a detachment of Turkish cavalry about three miles from the Italian outposts.

It has been stated that the Turkish Government is negotiating with the English aviator Hamel to get him to establish an aeroplane corps for them. They are reported to have offered him $50,000 for his services. Hamel has been consulting with the British Government to ascertain if he will be able to accept the offer under the neutrality laws.

Foreign Aviation Corps

THOUGH all European countries now recognize the importance of aviation as a military factor, France is strikingly ahead of all competitors. Neither England nor Germany are close behind; Belgium and Russia are both before them.

England has only two small army schools, at Aldershot and Lanark; a naval school at Eastchurch and a hangar for seven aeroplanes on Salisbury Plain. Germany has been carrying out secret experiments for three months at her military aviation school and for naval purposes at Danzig on a limited scale.

Compared with these, the French are leaders, indeed. The aviation corps has been established as a separate military branch, detached from the engineer corps. No less than $1,160,000 is being spent on the corps this year, and a remarkable variety of machines are available for study and practice at the different schools. Of these military aviation schools, the most notable are at Vincennes, Mourmelon, Rheims, Satory, Etampes and Douai, but seven more are planned, one of them in Algiers, so as to test the desert air currents.

It being a French belief that the pilots gain experience best by trying all manner of types, there are to be found at one school eleven Farmans, four Sommers, five Wrights, four Bleriots, two Breguets and two Antoinette machines.

Questions and Answers

A Department for All Aero Students

Conducted by A. Roe Bugg

Chicago, Ill.

Dear Sir:—

Is it possible for me to connect with an aeroplane company and learn to fly?

If I did learn would I be able to secure a position with some good areoplane company?

If I paid tuition for learning, I could not afford to buy an aeroplane for myself. How did some of the more prominent aviators flying at present break into the game?

H. A. T.

The only capacity in which you might be able to connect with any of the established aviation aeroplane companies would be as an expert mechanic. There are plenty of mediocre men to be had, but what is needed is good ones. A thorough knowledge of gasoline engines and good mechanical ability should make it fairly easy for you to secure a position in some of the factories. If you are a designer or engineer it might be there an opening could be found you in that line of work. I know of no company today that will take pupils and teach them to fly free of charge. If you went into a factory or office it would also be rather difficult for you to get an opportunity to become an aviator.

If you learn to fly and have the right requisites of an aviator there is little doubt but what you would be retained by the company teaching you. Do not delude yourself with the belief that you will be paid an unusual salary. The money you make will depend upon the actual flying that you do for the company employing you.

The men whose names you have mentioned in your letter became aviators in the following manner: The first one was a mechanic and occasionally would make flights as a passenger, learning the operation of the machines during these flights. He then began making "jumps" in one of the machines when no one was around. One day his employer found him flying and promptly took him in charge and gave him the finishing touches. The second one had money enough to be taught, and then bought his own machine. The third, fourth, fifth and sixth did likewise. In the case of the fourth, however, he became a pupil and then saved enough out of his earnings to purchase his own machine.

Everett, Mass.

Dear Sir:

Would a fifteen-foot glider be too small for a boy who weighs 110 pounds?

Would a Baby Wright machine with a 20-foot wing spread make a good glider?

Would a glider like the one described in the July issue of Fly work with one wing instead of two?

S. D. J.

Such a glider as you describe should prove satisfactory to a boy of your weight.

A Baby Wright properly constructed would make a good glider.

The glider described in the July issue of Fly would not prove efficient if built with one wing (I presume you mean plane).

Trenton, N. J.

Dear Sir:

I am going to build a model biplane and would like to know if a small steam engine run by compressed air and having a bore of 1 inch and a stroke of 1½ inches would propel a model for a good distance?

J. H. W.

Almost every experimenter with models has decided that the best motor for them is twisted rubber bands. Steam engines have been used, but nothing like the results have been obtained (with the exception of some of Langley's models) that have been secured by rubber band motors. Authorities writing books on the subject of model flying agree on rubber motors. For you to pursue your work on a motor of the kind you mention would seem a waste of time if you are building it for contests and sport. If you desire to inform yourself thoroughly on this point read references to motors in "Model Balloons and Flying Machines," by J. H. Alexander, and in "Model Aeroplanes," by Francis A. Collins.

Oakland, Cal.

Dear Sir:

How does a flight of 530 feet stand as a model record for the Pacific Coast?

This mark was made by Raymond Montagne, of the Oakland Amateur Aero Club of the Y. M. C. A., with a tractor screw model.

What is the American rising flight record for models?

H. M.

The flight of 530 feet is a good one for a model, and is, so far as I know, a Pacific Coast record. Cecil Peoli, of New York, at present holds the American record with a model flight of 1,691 feet 6 inches.

No figures have been given for rising flight records for models, that I can learn.

Durango, Mexico.

Dear Sir:

Can you tell me how to place aeroplane cloth for tests?

One to obtain the break at pounds per inch and the other for tear at pounds per inch.

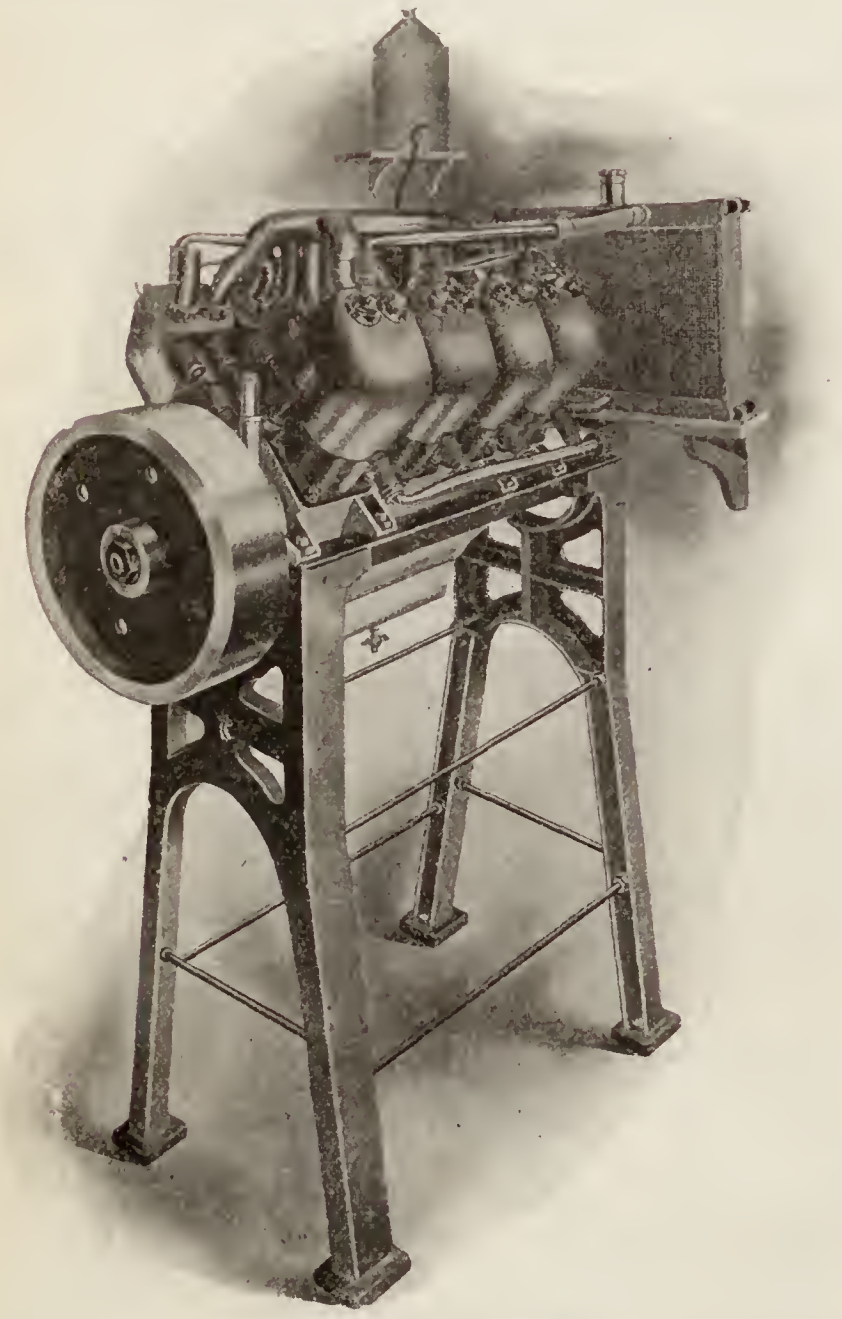
J. S., Jr.

In seeking an answer to your question I have been advised that it is very expensive to experiment with cloth for aeroplanes and that it is also a needless one, since the cloth manufacturers have covered the field very thoroughly and will no doubt be glad to give you all the tests their cloths will stand if you will write to them.

New Aeronautic Engine From Buffalo

Frontier Iron Works Builds 8-cylinder, 4-cycle Motor

THE illustration herewith submitted represents a remarkable development in aeroplane motors. It is shown mounted on a testing block, where it is run for a number of hours preparatory to a ten-days' test with propeller and final inspection.



The Frontier Aero Engine

This engine is the product of the Frontier Iron Works, Buffalo, N. Y., who have spent the past two years developing and testing this motor for aerial purposes. It is of the V type, eight-cylinder, four-cycle. The makers claim it is faultless in design, workmanship and efficiency.

The cylinders, pistons and rings are of a mixture and grade of iron that has made the company's reputation famous as a good wearing and non-overheating metal, being used by thousands yearly. The crank case is aluminum, box type, and is ribbed and braced in such a manner as to give stability and to resist undue strain.

The cam chamber is cast intergral with the case and machined out to insure perfect alignment with no danger of parts loosening or becoming false timed.

The crank shaft is made from Krupp's 3½ chrome nickel steel, hollow, as is also the connecting rod and piston wrist pins, through which the lubricating system pumps a continuous flow of oil from the reservoir, which is returned strained and continually used. All revolving shafts are run in imported annular ball bearings, supported in specially designed housings with connections to the lubricating system.

The valves are of special alloy and construction, which has been thoroughly tested to withstand long runs without adjustment or cleaning. The valve stems are operated through push rods adjustable for wear, they are hardened and run on steel balls, this feature eliminates the improper timing of valves. The intake and water manifolds are of copper, well designed for strength and capacity. All bolts and nuts are provided with ample protection against looseness through lock washers, castle nuts and cotter pins.

This motor is equipped with carburetor, magneto, oil and gasoline tanks and radiator, this being the standard equipment. Propellers are extra, but can be furnished if desired at a reasonable price.

In the design and manufacture of this motor the company had first in mind, regardless of expense, to produce a power plant for aerial transmission that could be relied upon for long runs and continual service, and before offering it to the public have put it through severe long run tests. With ten gallons gasoline supply at 1200 R. P. M., carrying an 8½ x 5-foot pitch propeller, the motor has run without a miss for four hours, and part of the time in a heavy downpour of rain, the only protection being the magneto covered.

The company is now building these motors in dozen lots in their newly equipped factory. Parties anticipating purchasing power plants are requested to write for full information and prices to the above named company.

Aero Club Election

At the meeting of the Aero Club of America on November 13th, at which the annual election of officers took place, Robert J. Collier was elected to succeed Allan J. Ryan as president.

In the other offices James A. Blair, Jr., succeeds Cortlandt Field Bishop as first vice-president, Major Samuel Reber, U. S. A., becomes second vice-president in place of D. H. Morris, and Harold F. McCormick, of Chicago, succeeds Mr. Blair as third vice-president. For the office of additional vice-president, Henry A. Wise-Wood was elected.

Monoplane Shows Progress in Model Building

Loss of Headway Overcome in New Machine

By Philip McCutchen

There are two very knotty problems that have been haunting the model experimenter, viz., the resistance and consequent loss of headway caused by thick, heavy planes and the frail, clumsy landing devices. The new ideas embodied in this monoplane have made a great stride in overcoming these troublesome problems.

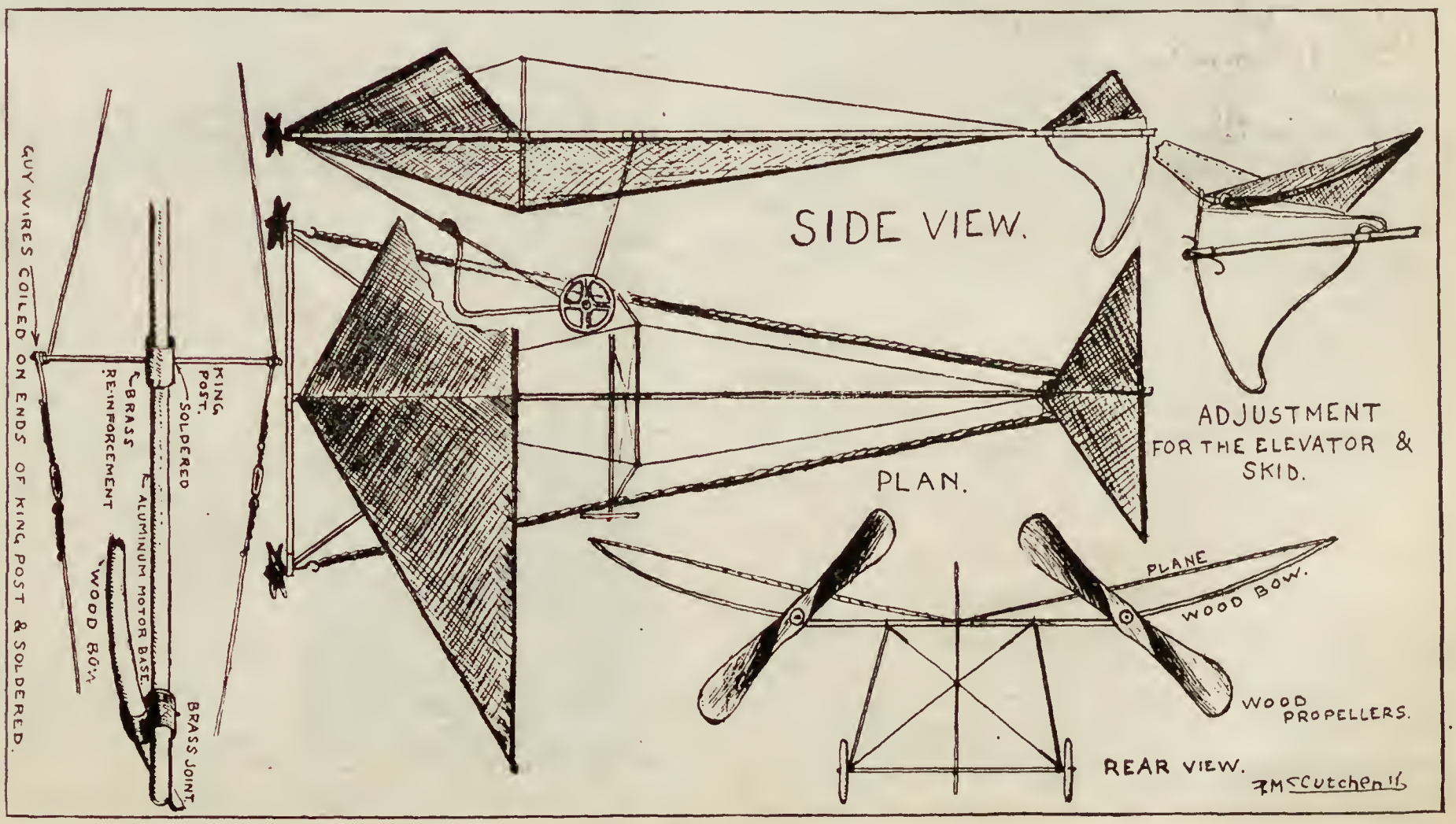
The motor bed of this model is an aluminum tube 5-16 inches in diameter and 28 inches long. It is stayed up in the four directions by means of light piano wire guys running over heavy gauge piano wire king posts, one king post in each direction for purposes of alignment, and neat little wire strainers of the turnbuckle type are provided. The attachment of the king posts to the frame, instances a touch of cleverness which is evident in the complete construction. A short of light brass, of sufficient diameter to slip snugly over the frame, is placed in position and a hole drilled through both. The king post is then pushed through the hole until the required length projects on either side, a touch of solder prevents it from slipping. The brass tube reinforces the frame where it is drilled and at the same time gets over the difficulty of soldering the aluminum. In addition, the solder does not have to endure heavy stress. Details of the frame are shown in the drawing.

The propeller bracket cross spar is attached to the motor base in the same manner.

The construction of the planes is another excellent feature, being at the same time simple and very efficient.

The principle is reminiscent of the bow-string girder. A wooden spar, built up in two pieces for the sake of attachment, is made to form a bow by means of two wires fastened at the tips and drawn taut, one wire being fixed slightly in advance of the bow, while the other is fastened considerably in the rear. The resulting neat frame is carefully covered with fine fabric and the plane is made. The camber is caused by the tendency of the bow to straighten out. The bowed spar stands quite apart from the plane surface, but it causes less resistance than the thick leading and trailing edge of the planes in common use today. The method of attaching the bow to the frame is shown clearly in the drawing. The elevator is made in a similar manner, but is built on to a tube separate from the frame, as may be seen in the upper corner of the drawing.

A skid of curved piano wire is provided in the front to take landing shocks and also to keep the machine in the correct attitude for rising. Two wire struts are run from the tips of the horizontal king posts downward to an axle carrying the running wheels, which are placed slightly behind the centre of gravity. The whole is braced by a strut of piano wire curved up to form a balancing skid in the rear.



The monoplane complete and ready for flight weighs 7½ ounces. Each propeller is driven by twelve strands of 3-32-inch elastic, the total weight of the elastic being two ounces. The motor base weighs about ½ ounce. The king posts measure from tip to centre just 2 inches. The propeller bracket spar is 8¾ inches long and ¼ inch in diameter. The laminated propellers weigh ½ ounce each, and at a diameter of 8 inches the angle of the blades is about 40 degrees. The widest part of the blade at the extremity is 1½ inches. The span of the main plane is 25 inches and the width is 6¾ inches at the widest point. The span of the elevator is 14 inches and the width is 4 inches at the widest point. This model has made flights of 150 yards starting from the ground.

More Aeronautic Schools

In the course of a statement this week the French Minister of War, M. Messiny, said that the time had come for the definite organization of French military aviation. The first step would be largely to increase the number of places where instruction in aeronautics could be obtained, and it was hoped to have by next year several hundred certified pilots, including some non-commissioned officers. The aeronautic corps was to take its place in the normal constitution of the French Army, and soon each commander of the twenty army corps would have at his disposal an aeronautic section. It is belived that the allowance to military airmen will be increased, and that the years spent in the aeronautic corps will count.

Italy Orders Aeroplanes

The Italian government is so satisfied with the success of aeroplanes in war that it has ordered several from Levallois of Paris. In the course of an interview given to the Secolo, M. Bleriot admits that the order has been received. M. Leblanc was present and said that the Italians had established the fact that aeroplanes afforded ideal means of reconnoitering in war time. In a few years, he thought, aeroplanes would provide a terrible weapon of offense. Flying machines, even now, were ready for the end but do not possess projectiles suitable for dropping among the enemy. M. Bleriot added that none thought two years ago, when he crossed the channel. that aeroplanes would so soon be used in actual warfare.

An Announcement

We are pleased to announce to our readers that the January, 1912, issue of FLY MAGAZINE will contain an article on the Stability of Aeroplanes by Herbert Chatley, B. Sc., A. M. I. C. E. I., member of the Aeronautical Society of Great Britain, Professor of Civil Engineering of the Imperial Chinese Engineering College, Tang Shan, Consulting Aeronautical Engineer.

The same issue will also contain an article by Carl E. Myers, the famous aeronaut, concerning the Solution of Soaring Flight. This manuscript treats quite thoroughly of the study of soaring flight and the results obtained.

No one interested in the progress of aeronautics should fail to secure the January, 1912, issue of FLY MAGAZINE.

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American News

Miss Harriet Quimby and Miss Matilde Moisant, with Moisant monoplanes, together with George Dyett and Captain Patrick Hamilton, with Deperdussin monoplanes, have arrived in Mexico City, where they will give exhibitions under the management of the Moisant Company.

Arthur T. Atherholt, licensed balloon pilot of the Aero Club of America, has been making weekly flights from the inflation grounds of the Aero Club of Pennsylvania at Holmesburg, Pa. The first flight, on November 4th, carried the balloon over the Princeton-Harvard game at Princeton, N. J. A landing was made near New Brunswick, N. J. On November 11th, the balloon again ascended with Dr. Ash and Dr. Pyfer, of Norristown, Pa., as passengers. The start was made about noon and a landing was made near White House, N. J., at 5 P. M. The trip covered a flight of 90 miles.

O. G. Simmons, aviator for Robert J. Collier, is experimenting with Bosch magnetos for the engines of the two Wright biplanes at Wickatunk, N. J. He has tried the Bosch magneto out and states that it gives more speed than the one he is using. Simmons has recently become a member of the Aero Club of Pennsylvania.

A reader advises us that George Thompson, who flies for the Mathewson Company, of Denver, Colorado, is a "world-beater." It is stated that Thompson has already reached an altitude of 3,700 feet, and it is said that this is about 400 feet higher than Hoxsey was able to go when in Denver, November, 1910. His longest flight was made at Sable, Colorado, when he remained in the air 1 hour and 14 minutes. He has carried a passenger in the air for 31 minutes. Thompson is called "King of High Altitudes." It is anticipated that he will be chosen to drive the new 24-foot Mathewson racer, which is to be driven by an 80 horse-power Hall-Scott engine.

The Aeronautical Society of the Rensselaer Polytechnic Institute has been formed at Troy, N. Y., with the following officers: T. H. Messer, president; L. J. Steinberg, vice-president; P. G. Zimmermann, secretary and treasurer; Edward Kneass and G. N. Hartwell, executive committee. The society has been formed for the purpose of investigating the lifting power of planes and to perform practical experiments. For this purpose they have completed a glider with which they are about to begin experimental flights.

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LEARN FLYING—Winter practice in the South. Reservations being made now for the January term. Sun Exhibition Co., Box 12, care Fly Magazine, Bulletin Building, Philadelphia, Pa.

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Fly is in receipt of a Mexican magazine devoted to aerial navigation, called *Cielo y Terra,* published in Mexico City. The journal is well illustrated with up-to-the-minute photographs and contains the current news of aviation.

Boys of the Pennsylvania Institution for the Blind, were given their impressions of aeroplanes on November 18th, when they attended the lecture, "Aeroplanes; How and Why they Fly," which was given at Drexel Institute, Philadelphia. After the lecture was over their teacher brought them to the platform and asked the lecturer, Henry M. Neely, if he would allow them to pass their fingers over the delicate models which were used to illustrate the form, construction and operation of aeroplanes. The request was readily granted and the models were at once brought forward. Neely guided the hands of the boys over the models and explained the working functions of each part by operating the tiny controls which work the same as in standard size machines.

The interest of the boys was so intense that they made no move to leave until the janitor of the building, making his rounds to put the lights out, interrupted the little class by announcing that it was closing time.

Practical demonstration of the effectiveness in destroying aeroplanes of a new explosive shell even when the explosion occurs as far distant as 100 yards from the airship is reported to have been made in aerial target practice by the Pacific fleet off Coronado Islands.

This is the first aeroplane target practice, in which the Pacific fleet has ever engaged, and it is believed to be the first time the newly invented shell has been tried out by naval vessels.

A journey in a balloon through snow squalls at an altitude of 10,000 feet was recounted November 20th, by G. L. Bumbaugh and Walter Moffit, who sailed in the balloon Duesseldorfer from Indianapolis yesterday and alighted late the previous night 15 miles southeast of Fort Wayne, Ind.

The aeronauts suffered from intense cold, they said, and had to combat storms in several strata of air through which they arose by throwing out sand ballast. Finally, the burden of the snow in the rigging of the balloon was more than it could support and it settled slowly to earth.

The balloonists were trying for the Lahm cup, now held by A. Holland Forbes, of New York, for a flight of 697 miles, but they traveled only 110 miles.

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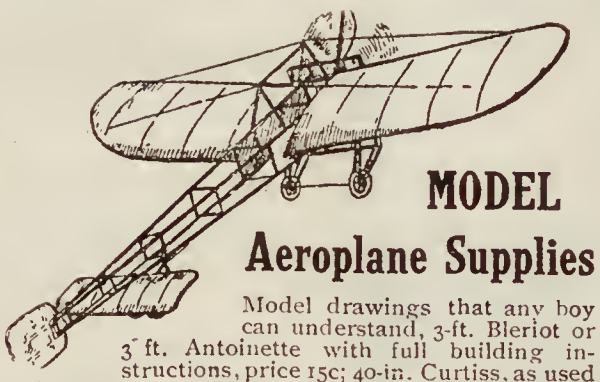
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Oscar Brindley, with James H. Hare as a passenger, flew over the Princeton-Harvard game at Princeton on November 4th. A beautiful photograph taken of the game by Hare, from the aeroplane, was recently reproduced in *Collier's Weekly.* The Yale officials gave notice that such trespass would not be permitted during the Yale-Princeton game at New Haven, Conn. They stated that if such an attempt was made they would invoke the State law recently in effect. This statute is designed to prevent flying over private property without permission from the owner.

Albert Elton's first flight as a licensed aviator, made at St. Louis, in the teeth of a gale, ended after two hours with a dive headon from an altitude of 3,500 feet, with the motor unchecked. He encountered a wind which forced back his aeroplane, though its motor was running at full speed, a distance of 15 miles. Realizing the danger of attempting a landing from a low level. Elton chose to climb to the higher strata and dive for the flying field. He accomplished this in safety.

Ten ranchmen, owning 150,000 acres in Pecos, Brewster and El Paso Counties, Texas, stocked with 200,000 cattle, have invested in an aeroplane, not for pleasure, but to rid their lands of the wolves, panthers and mountain lions which kill cattle.

They estimate that it cost them $100 a month for men to hunt the wolves, not to mention the thousands of dollars worth of cattle killed. Some of the cattlemen employ hunters by the month to kill wolves, while others pay bounties of from $3 to $7 for scalps.

Agents for aeroplanes have been working on the proposition and the first machine has been ordered and will be built especiallly for this use. It will carry two men and it is planned to penetrate the wild country and despatch beasts of prey with guns from a safe distance in the air.

A large amount of equipment, in the shape of aeroplanes, parts, machinery and staff of employees, will be sent from the Curtiss aeroplane factory, at Hammondsport, N. Y., to the Curtiss training ground

and experimental station on North Island, near San Diego, Cal., within a few days. The Curtiss training school is already open at San Diego, with about a dozen pupils in attendance, including one officer of the Greek Army, and Mr. Curtiss will follow the equipment which he is sending to that point about December 1st.

On September 16, O. G. Simmon, who is flying Robert Collier's Wright biplane, ascended at Wickatunk, N. J., to a height of 800 feet. At this altitude his engine quit, but Simmon made a spiral glide and a beautiful landing in the unromantic suburbs of a potato patch.

The first meeting of women interested in aviation was held in the assembly room of the Aeronautical Society, in W. Fifty-fourth street, on November 11. Just what part the women will play in fostering the science of aeronautics did not develop yesterday, but there was an earnest desire to get the woman's auxiliary branch of the Aeronautical Society under way. Although the meeting was not overcrowded, enthusiasm made up for the scarcity in attendance.

From Mrs. Hugo C. Gibson, who had the chair, to the young woman who combined the duties of usher and clerk, there was a decided sentiment in favor of organizing. With the exception of Miss Harriett Quimby, Miss Matilda Moisant, and Miss Blanche Scott no woman has been able to rise above the mediocre in the aviation field, and it is the intention of the promoters of the meeting to force women to the front in aeronauics.

Letters in support of the plan were read from Miss Harriet Quimby and Miss Moisant. Among those who attended the meeting and promised the movement their hearty support were Mrs. Gibson, Miss D. E. Ball, who was temporary secretary; Miss A. Shady, Mrs. Anna O. Hagstedt, Mrs. Harriett Atkinson, Mrs. Eva Thibbs, Miss W D. Suydam, Miss Irene Supo and Mrs. G. Loveday.

Al Welsh, who has been flying at Nassau Boulevard, had introduced the fashion of driving women to afternoon teas in his aeroplane. Mrs. Twombly was the first to make use of this means of transportation for that purpose.

Claude Grahame-White is scheduled to arrive in America on November 25. American aviators are making a desperate effort to sign up every possible engagement before the Englishman can dock.

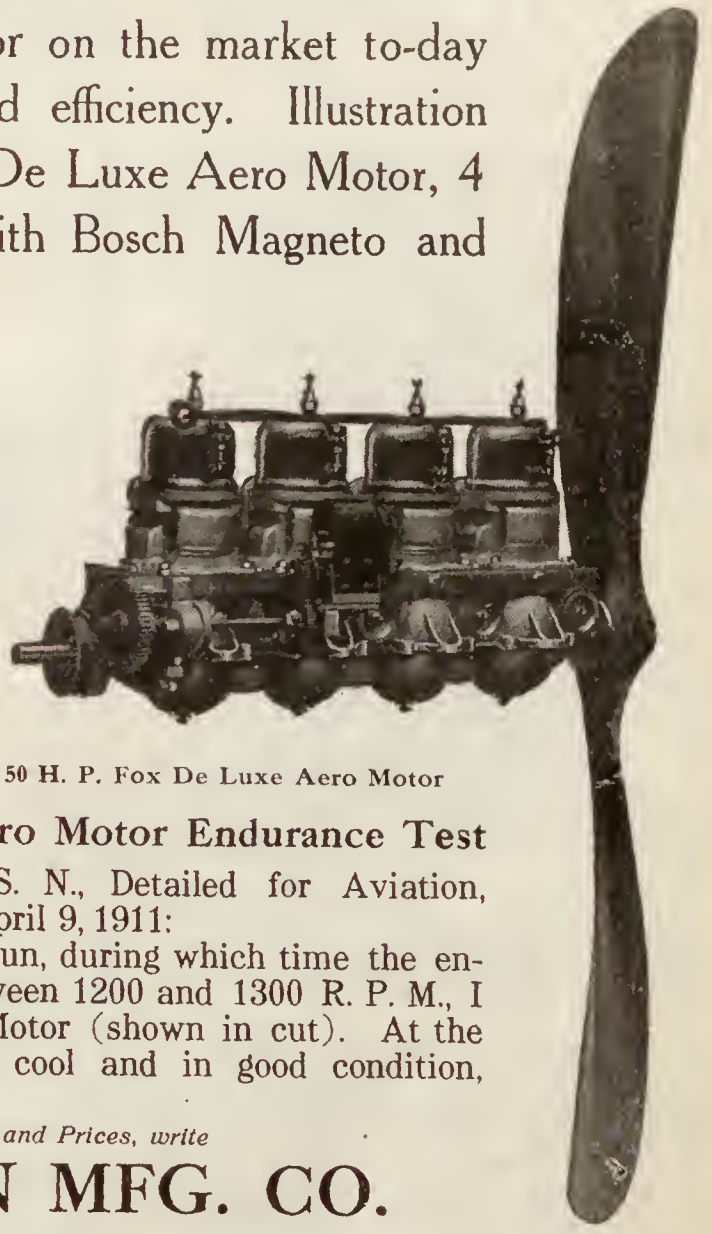
General Kaid Belton, a former English army officer, who is studying aviation at Chicago, had a fall of more than 400 feet. He suffered severe injuries.

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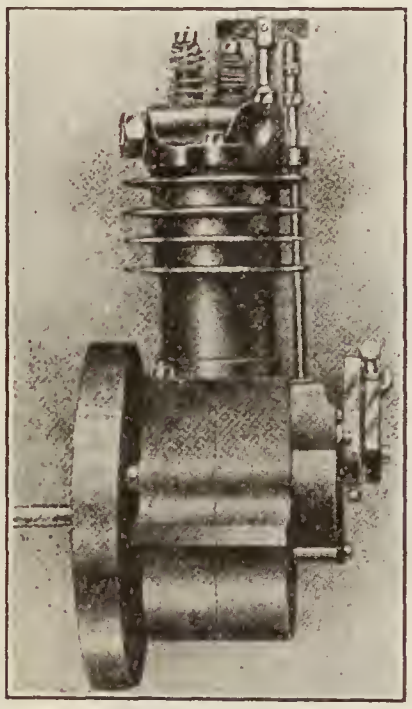
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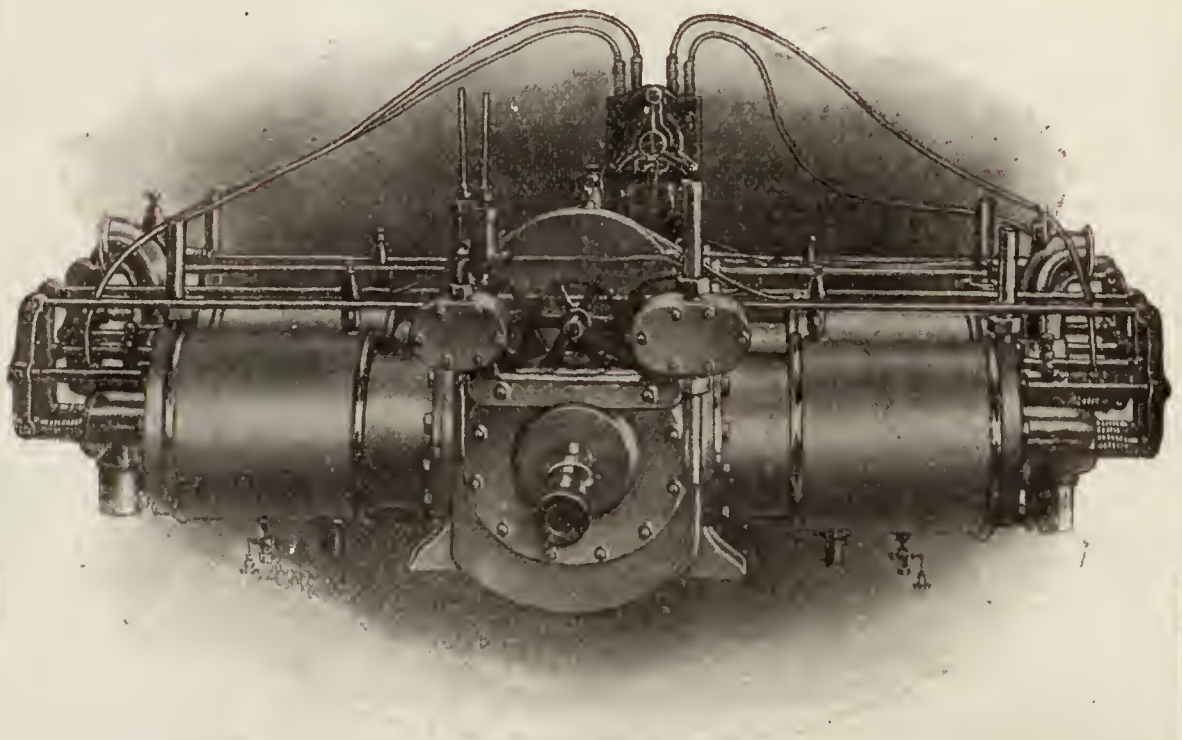
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For the convenience of the readers of this magazine, a book department has been established. In this department are listed the books on aeronautics that should prove useful to the student and enthusiast. Efforts will be made to fill orders for aeronautical books not included in the recommendation list.

Orders should be accompanied by a post office money order for the amount specified, and should be addressed to Book Department, Fly Magazine, Bulletin Building., Philadelphia, Pa. Money orders should be made payable to Aero Publishing Company.

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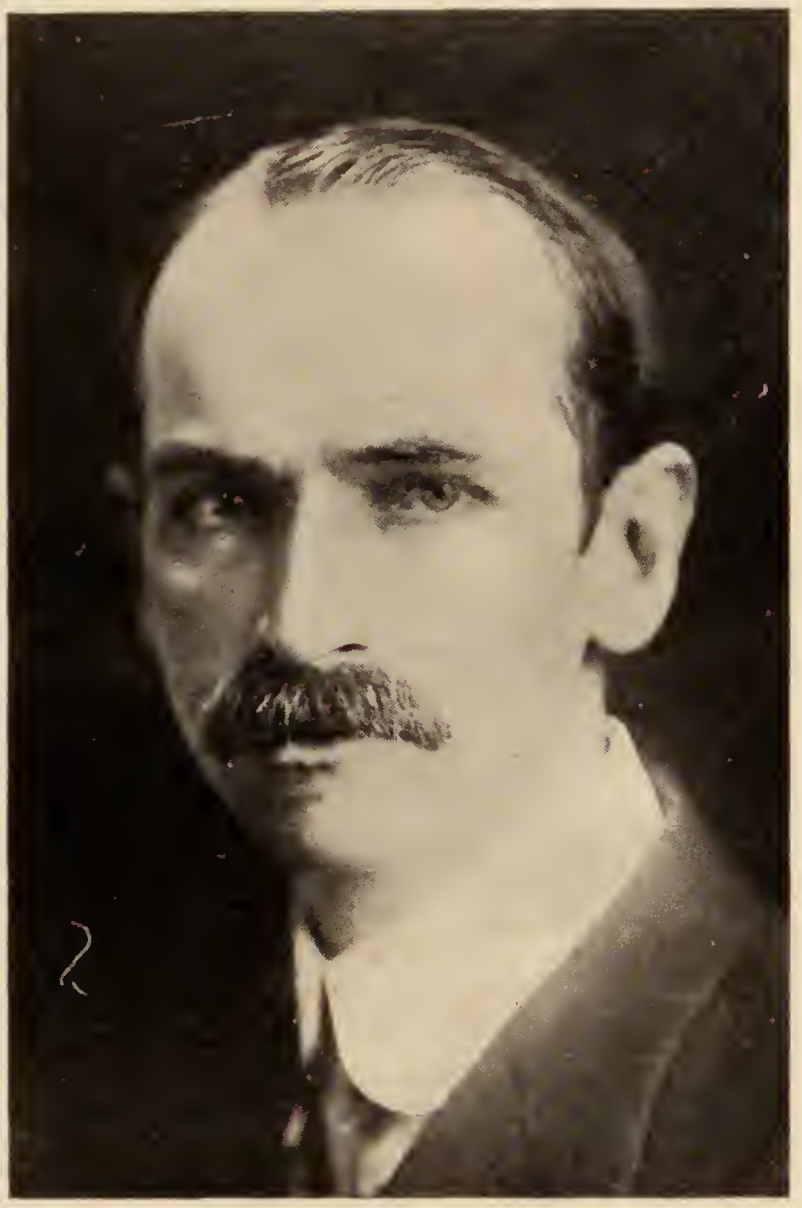
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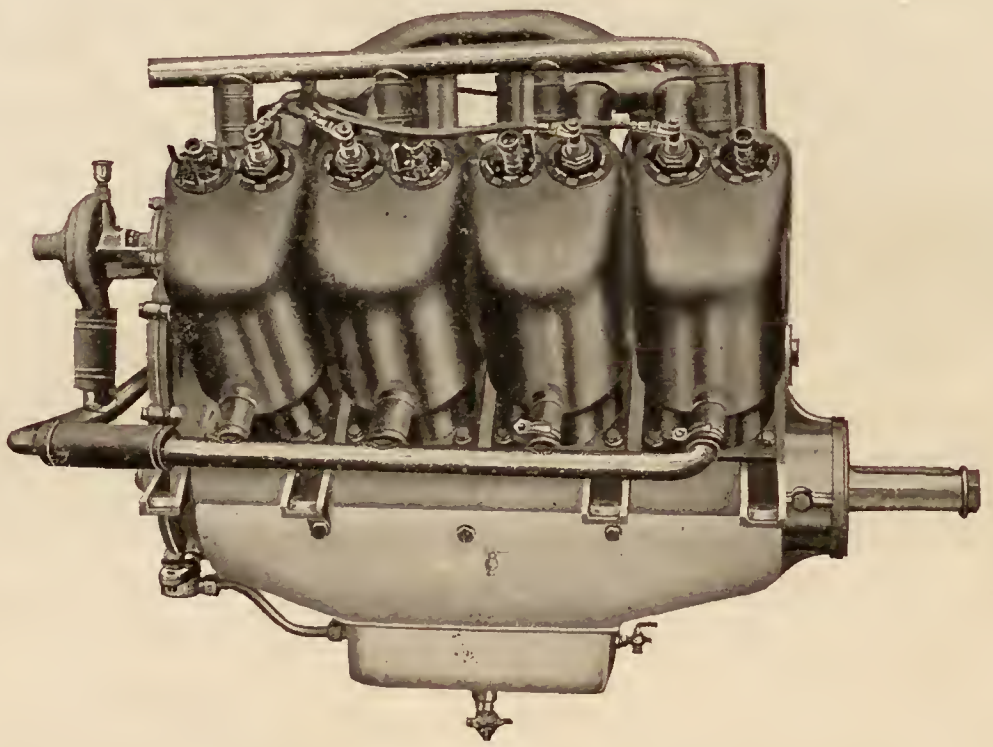
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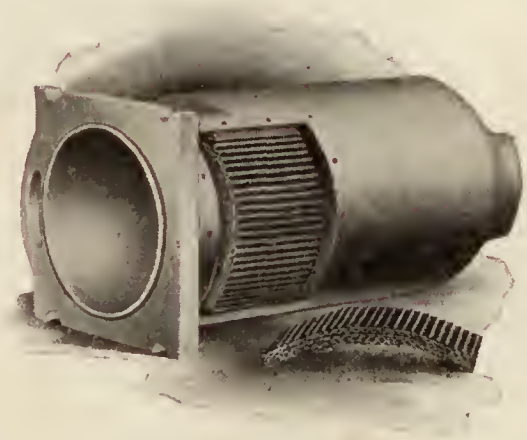
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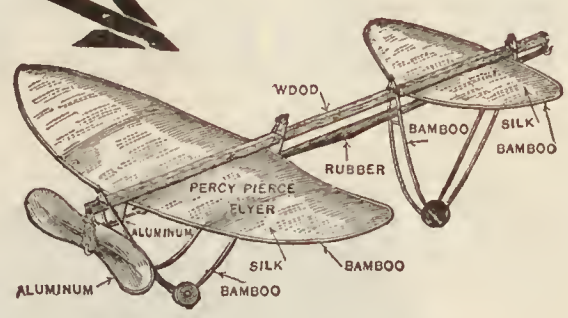
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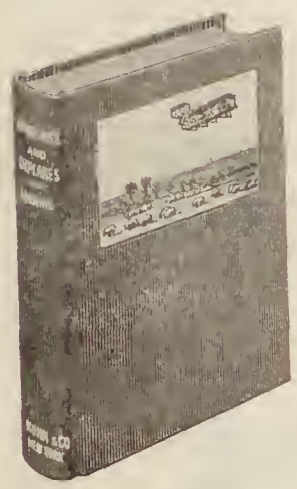
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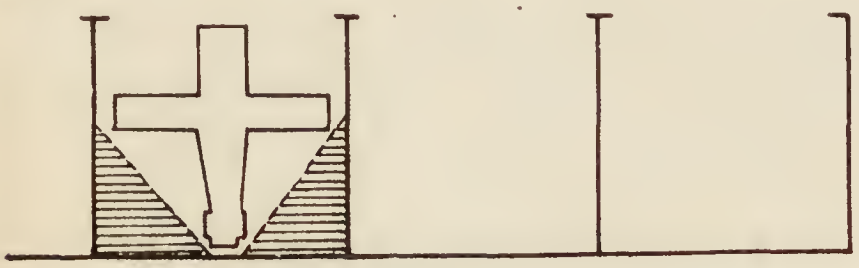
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Space Saving Aeroplane Sheds Abroad

Prove Economy of Wasted Space

THE sheds hitherto used for the accommodation of flying machines have all labored under the drawback that, owing to the variety in the external shapes of the machines, a great deal of covered space was wasted, and that the practical arrangement of the repair workshop and a convenient means of access between it and the machine stand were out of the question.



Fig; 1

The shape of the shed here represented does away with these objections, for a polygonal form has been substituted to the rectangular, and dead corners are thereby eliminated. Moreover the repair shop is placed in the very center of the shed, and thus unimpeded access is provided to the standing-place of each separate machine.

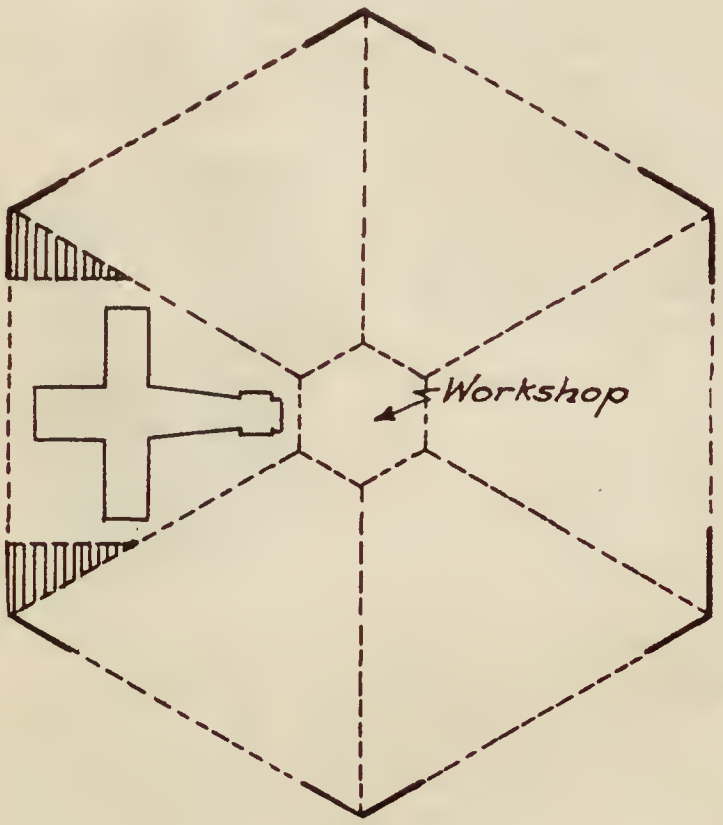


Fig. 2

A shed of this kind (Fig. 2, without repair shop) is constructed by the Balloon-hangar-construction Company (Arthur Mueller), of Charlottenburg, Germany, after the Gramatzky system.

The diagrams herewith represent the following:

Fig. 1: A rectangular shed for smaller machines, of the old style, in which the various machines stand next to each other.

Fig. 2: A polygonal shed for six machines.

Fig. 3: A polygonal shed of the new type for 4 large or 8 small machines.

The hatched portions of the drawing in Fig. 1 and Fig. 2 show the lost space which in the old type are, as will be seen, quite considerable, whereas in the new arrangement (as per Fig. 3) all such dead corners have disappeared.

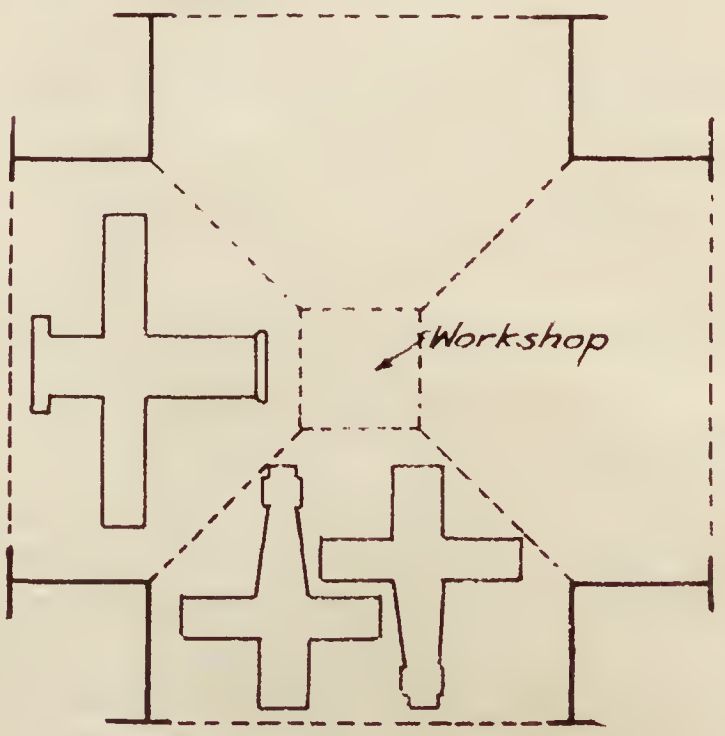


Fig. 3

For the closing of the shed sliding-doors are used, so conveniently contrived that on their being opened they release the entire side of the shed without interfering with each other, so that in an emergency, all the sides can be opened at the same time.



The Completed Shed

The half-tone cut Fig. 4 shows a shed of this kind actually and successfully used at Undine; others are at present under construction.

The weight of the shed, constructed as it is of light iron with sheet-metal partitions and corrugated roofing, is very slight and the cost of construction is proportionately low. By means of large windows in the partitions and skylights in the dome over the repair shop excellent daylight is secured for the entire building.

NOTICE—The Attention of All Readers is Directed to page 31

The Development of Automatic Stability

Aeroplanes Today only Moderately Stable

By Herbert Chatley, B. Sc.

THE advance of construction and experiment combined with a knowledge of the dynamics of aeroplane stability as studied by Bryan, Ferber, Lanchaster and Soreau*, has placed us in a position to design a moderately stable aeroplane. It is to be regretted that as yet it has not been found practicable to render all aeroplanes used for sportive, military and commercial purposes, subject to a strict examination by experts before general use with a view to determining the limits to their stability, as is done with ships, but this will come.

Longitudinal stability is now known to depend on a tail or balancer. This may be in front or behind, but in any case it must be at such an angle that it forms with the main surfaces a dihedral with downward apex. The Valkyrie and Voisin "canard" type, have a front balancer carrying part of the load and set at a greater angle with the line of flight than the main wings. The various monoplanes that have been developed from the Bleriot cross-channel type have rear tails with no load just like birds.

The new Wright biplane and the Farman machines are similar, some with a little load on the tail, some with none. In all cases the weight or increased air pressure on the balancer must produce a righting couple which swings the machine back into the correct altitude when by any cause it is displaced therefrom.

The most dangerous feature of longitudinal balance is the possibility of the wings presenting a negative angle to the wind owing to a sudden dip through an angle greater than the angle of attack. This may occur when the motor is shut off for a vol-plane as then the running speed generally increases and the center of pressure on the concave wings *goes back* giving a downward tip. All pilots advise depressing the nose before a vol-plane. For this reason a fairly large balancer seems advisable.

The receding negatively inclined tips of the Weiss, Dunne, and Mac-Fie machines are undoubtedly good features, and will probably appear in all future machines of any importance.

Lateral stability is not yet satisfactory. Several bad accidents have occurred through lack of this, and while warpings or ailerons undoubtedly give good control, the use of properly placed fins is in my opinion ultimately indispensable.

Elevators, rudders and ailerons or warpings are at present in constant action and the pilot has to develop a perfect sense of response before he can fly well or safely. The levers to each should be balanced or steadied in notched sectors, as it should be quite unnecessary for the pilot to exert a continuous muscular force to maintain a surface in position.

I recently made a small hop on a French monoplane at Tientsin and was greatly hampered by the weight of the elevators which had to be held up all the time.

I would strongly recommend inventors to concentrate attention on co-ordinate controls and arrangements of surfaces which give a large measure of automatic stability.

* See authors articles in "Engineering" (London), March to October, 1910, and the Report of the Advisory Committee on Aeronautics, 1910.

Double Fatality in England

A DOUBLE fatality occurred at Filey, Yorkshire, England, on December 6, a promising young aviator and instructor in flying fell from a height of 80 feet with Robert Weiss, his passenger, and both succumbed. Oxley was instantly killed and Weiss died shortly afterwards.

Oxley had been flying at Filey frequently with Weiss as passenger, so scant public attention passed when they circled over the town and passed within a few yards of the house roofs. After a sweep inland the machine turned towards the sea front and shaped for a descent. Suddenly, it is said, the machine dived from a height of 400 or 500 feet, with the engine working, and when it was 80 feet from the ground the spectators were horrified to see both planes buckle backwards and the machine drop like a stone. Oxley was projected head foremost from his seat, and, after describing a curve in the air, pitched upon his head on the sands fifteen yards away. His head bent under his body, and when he was picked up it was found that his neck was broken and that practically every bone in his body was also fractured.

The machine had dived nose first to the ground, the engine being forced back upon Mr. Weiss, who was fearfully mangled when picked out. He was unconscious and suffering from a compound fracture of the skull and fractures of both thighs and ankles, the bones of the latter protruding. He was carried to the coastguard station, but his case was hopeless from the start, and he died at 11.05, the accident having occurred at 9.45.

England To Have Military Aeroplane Competition

Open Contest Displeasing to Home Industry

THE results obtained by the French Government in the recent Military Aeroplane Trials has had the effect of stirring up other countries to a sane contemplation of similar contests. England within the past week has announced its intention of carrying on a contest open to aeroplane manufacturers all over the world. A prize of $20,000 has been offered for the winning machine and one of $10,000 for the one securing second place. Smaller prizes have been offered for competitions in which only British subjects and British-built machines are eligible.

While the competition for the two large prizes is open to the world, duplicates of the winning machine will be purchased by the Government only with the understanding that the orders are to be executed in Great Britain. The result is bound to give an impetus to the struggling industry in Great Britain and will also have the effect of increasing the number of skilled aeroplane mechanics in Great Britain.

It can easily be seen that the foreign competitors even if they win, will gain little compared to the benefit bound to result to British builders. But despite this fact, the competition seems to be distasteful to the English manufacturers.

What the home builders want is a competition confined to British machines alone and it is claimed by one writer at least that "the aeroplanes built in England are the best in the world in design and workmanship." This writer continues further and says, "in fact the only real advance in recent design has been made on British machines, and incidentally, no British machine has ever yet killed its pilot owing to the failure of some vital part during flight."

The results of the British Circuit and the European Circuit have no doubt made a strong impression in England. In these competitions the machines of English manufacture were quite outclassed.

It is pointed out that the reason why the French aeroplane companies have had such great success is because every time the French Government found a machine that was satisfactory, the builders were encouraged by small orders from them.

It is said that in England orders have been forthcoming from the Government in small quantities and then to only one firm.

Since the commercial man and the financier must judge and does judge by results, capital has not been attracted to the British aeroplane industry and it has suffered heavily for this reason.

It is further argued that any manufacturer entering a military competition needs at least two machines built in order to continue in the contests should an accident disable one of them. This means an outlay of at least $10,000 and it is claimed that no British firm can afford to spend this amount unless there are awards to make it worth while.

It is also asked that the rules should be so worded as to encourage the British manufacturer to enter and to also enable him to approach financiers with a proposition likely to attract them.

An editorial writer in one of the British aeronautic magazines asks, "Is there any necessity to hold the competition at all? If the authorities are sufficiently certain of their requirements to be able to frame the rules of this competition, surely they are in a position to invite and accept tenders from manufacturers, with the provision that the machines must be British made and able to pass certain tests. On the other hand if they are not certain of their requirements, then the machine which wins the competition, although it has passed successfully through the prescribed tests, may not necessarily be the best machine for military purposes, and therefore, money spent on the competition will not have benefited the Government."

It is certainly for the best interests of the Government to hold an open competition. This is necessary if they are anxious to obtain the best type of machines for certain purposes.

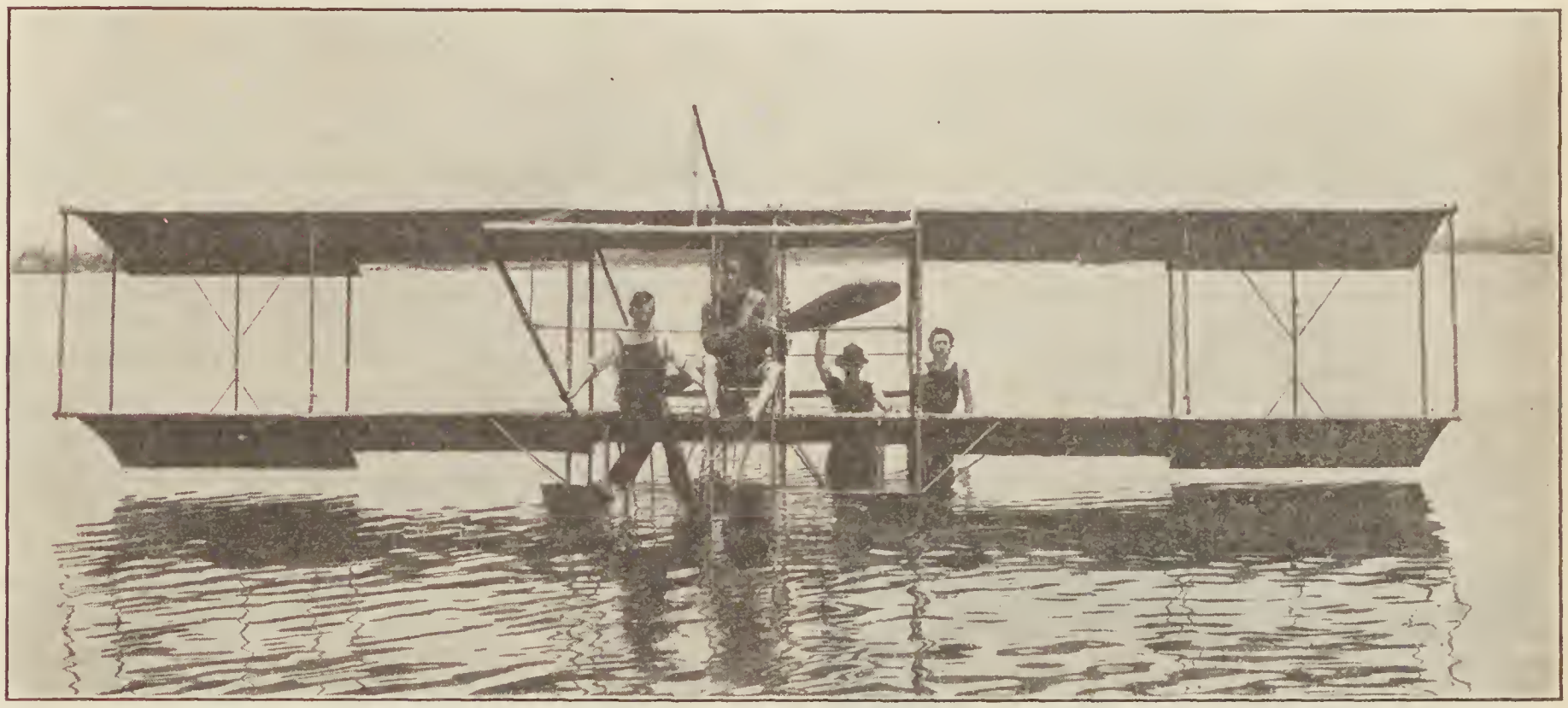
France, without question, leads the world today in the aeroplane industry. That the French Military Trials should be confined to machines of French manufacture is quite natural. It is quite improbable that there is another machine in the world at the present time that could have given the results that the Nieuport did and it is quite doubtful if any other country could have produced the seasoned pilots that were represented in the French trials. Without such excellent aviators, well-designed and speedy machines would not have availed much.

Great Britain has lagged only a trifle behind the United States. Government patronage has been very slight in America although it has appropriated some funds for the development of an aviation corp and purchase of less than a dozen machines.

In Great Britain the British built aeroplanes have achieved but little success in contests and it is a noteworthy fact that T. O. M. Sopwith and Claude Grahame-White have been flying French and American machines and are using them in this country.

Continued on page 10

Brown Hydro-aeroplane Successful



The Brown Hydro-aeroplane

May Be Built in Philadelphia

AMONG the recent aeroplanes built in America during 1911 the Brown hydro-aeroplane represents a type that is finding quick favor with the public.

Both at home and abroad the hydro-aeroplane has been accepted as the most useful type yet produced.

The machine shown in the cut above was built in Baltimore and was successfully flown by Anthony Jannus on May 16, 1911.

Such a machine without the forward elevator and with other minor changes will probably be built in Philadelphia, Pa., within the next few months.

The machine has a width of 32 feet and is 31 feet long. The gap between the planes is 4½ feet and the chord is 4½ feet. The center planes are 3½ feet wide.

The planes are constructed in five sections and can be removed and replaced without rebuilding a whole lower or upper plane section as is the case in most other biplanes.

The camber of the curve is 3 inches and the point is located 1/3 back.

The engine is about 45 h. p. and drives a 7-foot 6-inch propeller with a 5.9 foot pitch.

The weight of the aeroplane complete is 1,000 pounds. The power plant, gasoline and water weigh about 450 pounds and the hydroplanes and braces weigh 175 pounds.

There are three hydroplanes which have a displacement of 27 cubic feet. Tin, which proved a poor covering, was used in their construction and added greatly to their weight.

However on account of their curved steps they would plane on top of the water inside of 50 feet, and if the engine was working good would lift from the water as soon as the machine was straightened out. It would take nearly four times the distance for it to rise from water as it would from land, probably on account of the dragging effect of the shallow water and the excessive weight carried per square foot of effective wing surface, nearly 5 pounds to the square foot.

It would make forty to fifty miles on water and had an individual speed in the air of 52 miles per hour.

Michelin Cup Rules for 1912

THE aviation competition for the Michelin Cup will be conducted under modified conditions in 1912. The course selected is in trefoil form, consisting of three great loops, each 500 kilometres in circumference, making a total of 1500 kilometres, to be covered by the competitors. Paris is the starting point, and stops to replenish supplies will be allowed there after completing each loop of the circuit. The route passes through various large towns, and places so far apart as Dieppe, Orleans and Troyes will be visited. An additional prize is awarded for each passenger carried.

Tod Shriver an Aeroplane Victim

DURING a flight at Ponce, Porto Rico, on December 3, Tod Shriver, a well-known American aviator, fell a distance of 200 feet to his death. He had been making a flight over the city.

Shriver was a picturesque figure in aeronautic circles throughout the United States.

Mrs. Shriver did not want her husband to make the trip to Porto Rico and it was with extreme reluctance that she gave her consent.

The body was brought to the United States on board the steamship Coamo which sailed from San Juan on December 6.



Photo, Courtesy of H. M. Neely

Tod Shriver after his fall at Wilmington, Del. Captain Tom Baldwin at the left

Shriver has had many minor falls and a few serious ones. He fell at Wilmington, Del., and broke a leg. He fell at Belmont Park, New York, on the first day of the recent aviation meet. He fell again at Batavia, N. Y., six weeks ago and crushed a leg so badly that he was still on crutches when he left on November 18 for Porto Rico, where he was to fill several engagements before crossing to South America.

English Aeroplane Contest

Continued from page 8

Sopwith brought a Howard-Wright to America last summer, replaced it with a machine built by the Wright Brothers Company and then procured a Burgess-Wright and then another Wright. Besides these he had with him a Bleriot monoplane.

Farmans, Bleriots and Nieuports have been Grahame-White's choice in almost all contests he has entered.

Certainly if there were machines in Great Britain that would fulfil the requirements of these two master aviators, they would have procured them, at least for trial.

Whether the winning aeroplane is made in Siam or Cape Town should not prejudice the judges against giving the orders.

But after this order is filled, an effort should be made to have such machines built in the country holding the competition.

Possibilities of war are always present and since it has been clearly demonstrated that aeroplanes are to play an important part in such struggles, they have become a necessity to every military organization in the world.

Aeroplane factories, and aeroplane constructors and mechanics are not developed in a day and they are not available on short notice. In event of war it would not be convenient or feasible to secure aeroplanes and mechanics from another country.

To meet this emergency every government should encourage the aeroplane companies in their own country and aid as much as possible in the training of aviators and mechanics. The development of factories and repair shops requires time and the sooner work is started in this direction, the better equipped a nation is for conflict.

England and the United States have been much hampered by a decided lack of enthusiasm over aviation, among the members of the English Parliament and the United States Congress.

It is hoped that the recent demonstrations of the aeroplane and its possibilities, will awaken interest and secure encouragement for the struggling industry.

While the appropriations of the British War Office for a Military Competition seem rather meagre in view of the great expense attached to aviation, it is still a step in advance of the United States.

The time is at hand when the aeroplane must be recognized as a necessary part of military equipment and to delay longer in vital action to assist their development would seem to expose either bad counsel or poor judgment.

It does not seem possible that intelligent statesmen and law-makers can continue to ignore longer the demands of aviation interests in the respective countries.

The French Military Aeroplane Trials

Nieuport Monoplane Wins Competition

IT has remained for the French Government to hold the most complete aeroplane trials in the history of aviation to date. In the recent military events held at Rhems, France, twenty-nine aeroplanes, representing sixteen types of machines, entered into the competitions enabling the French Government to secure valuable data concerning each one without the necessity of purchase unless certain requirements were met.

The final speed reace of the military aeroplane competition was won by the Nieuport monoplane, piloted by Weymann. The time occupied by that machine in covering the 186 miles of the out and home non-stop flight from Betheny to Amiens and back to Betheny, was only 2 hours 36 minutes, making an average speed of about 72 miles an hour. That result may be considered definitive, because the Deperdussin monoplane, pioloted by Prevost, traveling at the average speed of about 57¼ miles an hour, which came in second, took 3 hours 15 minutes to perform the same feat. The third, fourth, and fifth places were captured by the Farman Brothers' biplanes. The time of the Henry Farman type, classed third, was 3 hours 35 minutes, making an average speed of about 52½ miles an hour; that of the Maurice Farman type, piloted by Barra, 3 hours 56 minutes, and that of the Maurice Farman type having 65 feet span of wing, with projecting upper plane, piloted by Renaux, 4 hours 4 minutes. The Savary biplane, piloted by Frantz, performed the journey in 4 hours 24 minutes. The Breguet biplane, piloted by Moineau, failed to complete the flight, and the Breguet biplane, piloted by Bregi, started in the race, but returned after a flight of a few miles. As for the Deperdussin monoplane, piloted by Vedrines, it did not start officially, but made a trial flight to Coucy le Chateau and back to Betheny.

Thus far the contest has once more proved that the biplanes of today cannot equal the speed of the monoplanes, but it has at the same time demonstrated the reliability of the Farman Brothers' biplanes, of which three figure creditably in the list of the six aeroplanes which completed the 186-mile non-stop flight. The award gained by the Nieuport monoplane piloted by Weymann consists in the purchase of the machine by the State for $20,000, the order of ten similar monoplanes at the price of $8,000 each, making a total for them of $80,000. The grand total which will be handed over to the Nieuport Company will therefore be $120,000.

It was of course understood that the competing aeroplanes and motors were to be of French construction, which was the case, but of course the different companies were allowed to enter their operators regardless of nationality.

The sum of $220,000 was given by the French Government for prizes and the purchase of competing aeroplanes, the winning machine to be bought for $20,000 and the constructor to receive an order for ten similar machines at $8,000. This price was subject to a bonus of $100 for every kilometre that the average speed exceeded 60 kilometres an hour during the final 300 kilometere flight, up to the maximum limit of 80 kilometres an hour.

The constructor whose machine received second place was to receive an order for eight similar machines at $8,000 each, subject to the same speed bonus, while the builder of the third machine was to receive an order for four machines on the same terms.

The rules stated that each machine was to be fitted with three seats, one for pilot, one for mechanician and one for an observer. The machines had to be capable of carrying a useful load of 660 pounds which did not include the weight of fuel, oil and water. The minimum average speed of 38 miles an hour had to be maintained for a distance of 186 miles. The machines further had to be capable of landing on and re-starting from ploughed fields, stubble fields or meadow lands. The machines had also to be so constructed in such a manner as to be capable of easy transit, by road or railway, without being entirely taken apart.

The elimination trials consisted of six separate tests; in the first three the machines were required to start fully loaded and alight on ploughed land at a fixed point 31 miles from the start. Here the machines were required to demonstrate their ability to start again and then had to be transported back either by road or rail.

In the fourth test the machines were timed over a 31-mile course to a certain speed condition. The machines were required to land at the starting point.

Two other starts required the machines to attain a height of 1640 feet in fifteen minutes.

In the final competition the surviving machines were drawn up and started at five minute intervals, carrying their useful load of 660 pounds, and required to cover a course of 176 miles out and home, maintaining a speed of 38 miles an hour.



Photo by Paul Thompson, N. Y.

Breguet and Bleriot Machines and Portable Hangars at Rheims

M. Ader, one of the pioneers of powered aeroplane flight, is quite satisfied with the results of the French military aeroplane competition. While admitting that they require considerable improvement, he contends that both the monoplanes and biplanes of the present day are capable of rendering signal services to the army. Modifications in the mechines, to adapt them more thoroughly to military purposes, will, doubtless, soon be made; but above all, says M. Ader, it is indispensable that France should for her defense create a powerful aerial fleet with as little delay as possible. In 1908—that is to say, in the same year that the first flight of one kilometre out and home was achieved—he urged the expenditure of 10,000,000 francs ($2,000,000) on military aviation, and now he declares a sum of one milliard francs ($200,000,000) is required for the organization of the French "fourth arm," and the purchase of sufficient aeroplanes to secure the supremacy of the French aerial fleet over all others.

It was stated in *The London Field* that the Minister of War had decided to create numerous additional military aviation schools, and Gen. Roques has now declared the training of an even larger number of pilots than are required to man the military aeroplanes is desirable. As for the men who will use the defensive weapons, their training must necessarily be deferred till the nature of those weapons has been decided, and the apparatuses for their employment invented.

No doubt several if not all of the machines which figured in the French military aeroplane competition are well adapted for military purposes, but it is evident the swift monoplane destined for dispatch carrying will not be required to carry the heavy weight of 660 pounds in addition to the essence and oil for a long voyage imposed in the competition. On the other hand, the less swift biplane will probably have to carry an even heavier load, but speed will, perhaps, not be such an indispensable quality as the capacity to slacken it. Though numerous improvements and inventions have still to be made, it is, nevertheless, true that, as the French War Minister said, the purely experimental phase of French military aviation is at an end, and the period of the definite organization of the French fourth arm has commenced.

Robert Esnault Pelterie, President of the French Syndical Chamber of Aeroplane Constructors, also pronounces in favor of at once creating a great aerial fleet, which, he affirms, would give France "the certitude of victory" in case of war. He urges the chambers not to hesitate to vote a subsidy of $15,000,000 for the organization of the fourth arm and the purchase of 1,000 aeroplanes. He considers, perhaps rightly, that even if the 1,000 machines have to be replaced every year till the definitive types of military aeroplanes are established, it would be well worth while to make the pecuniary sacrifice.

A Solution of Soaring Flight

Utilizing the Power of the Wind

By Carl E. Myers

WE have lately the spectacle of Orville Wright making a wonderful flight without engine power over Kill Devil Hill, N. C., Oct. 24th, 1911.

Note the conditions: "A 40-mile wind" blowing up the hill slope, he faces it seated on a pendulum-balanced-biplane during several consecutive minutes. It is a skillful feat of balancing on the buoying blast of an up-hill wind. He has courageously shown how to do it.

Success results from knowing what one wants to do, and acquiring the skill to do it. Automatic balance, pendulous progressive movement, in accord with aerial wave pulsations, together lessen the demand for fierce 40-mile wind-boosts; but it is of first necessity then to have sufficient expanse of surface to buoy the weight safely.

At this stage of the art, altitude is gained by foot-pounds of power expended, whether it be wind-power, muscular power or engine power. Having acquired altitude, gravity is at command for gliding in any direction in the line of the lowest edge, and next, by momentum, moving in any course up or downward.

The spectacle of a ball balanced upon the jet of a fountain by the up-spurt of water is a familiar sight. Some years ago there appeared at the fair of the American Institute, in New York, the novel exhibit of a ball floating free in space above a flat table, as if dancing on air. That is what it did, for the table-top was pierced by an inconspicuous hole through which issued an invisible jet or fountain of air whose up-thrust spun the ball ike a top or a gyroscope toy and retained control of it.

Some years later I saw in an exposition, and again in a city show window, an effigy of a magician who held a wand or light rod in each hand. A foot or so above one wand there danced in mid-air a glass ball. As the two hands with extended rods approached each other, till the tips nearly touched, the ball leaped nimbly to and above the empty rod, leaving its former guide vacant when hands and rods separated, to do over again the same trick; for it was a trick, played by the two alternating jets of air issuing under heavy pressure through pin-holes near the tip of each upper end. It seemed like magic—it was only wind.

Another example of the wind power was exhibited with a much larger ball, when I first began operating a captive balloon from the Government grounds of the Navesink Twin Lights at Highland, N. J., for observation and reporting of the trial and international yacht races for the America Cup.

As this balloon ascended about 1,000 feet above the brow of the hill it was pushed over and down the steep hill by the rush of wind which came across the upper flat and poured down the slope to the sea like an invisible aerial Niagara. Thus we had the novel exhibit of a fully inflated gas balloon and passenger captive at the end of a rope anchored to the top of a hill, swung down below, nearing sea level by the plunging overflow of wind. On days when the wind blew off the sea and uphill, the balloon ascended with it, even when half full and unable otherwise to lift itself and rider, just like a great parachute or umbrella when the wind indented the slack under side.

A man-size kite would have done as well. It was merely a gas-kite. Wind and surface did the lifting, and it soared and hovered.

By some thinkers the spectacle of whirling dust and papers flying upward has been attributed to upward currents of air, often warm air rising from the heated surface of the earth. I have seen at the balloon farm whole newspapers unfold themselves and rise over the house and flit far away. At sea I have sped a thousand sheets of paper skyward in a stream ending out of sight from the steamship.

This phenomena has been termed "aspiration," and used to explain the apparently soaring flight or aerial suspension of birds with motionless, outspread wings.

When the veteran engineer Lancaster, some 30 years ago, in an address to the meeting of Associated Civil Engineers, at Buffalo, declared that he had repeatedly built "effigies" which arose from his hands and drew away, and mounted into mid-air out of sight, the meeting derided him, and fairly drove him into exile. The newspaper report of his declaration was a revelaton to me. It was a glimmer of the secret of soaring flight, as in a vision, and I pursued it.

Given an undulatory wind-power whose flowing stream of waves is split apart by the edge of intervening surface having weight below to prevent capsizing, and whose rearward surface curves slightly downward, so as to divert the undulating waves slightly downward and to inspire an uplift in the aeroplane, and we have the phenomena of aspiration, as a result of

this "internal work of the wind," as Prof. Langley later termed it, 1893.

I spent a few years kite-flying just before I moved to the balloon farm at Frankfort, N. Y., in 1889, and I evolved a theory of "Undulatory Flight." Any undulatory movements of surfaces will give progressive movements of air. Conversely, undulatory progressive movements or waves of air impart force or motion transversely to the line of flow. Thus a flag wriggles in the wind, wasting its power in flaps, when a single, appropriate curvature would solve the riddle of soaring.

Then I thought this was so. Now I know it is so. The result of my many early efforts was the evolution of my so-called Texas self-flying kite, 100 of which were used by the United States Government "rain-fall" experiments, 1891, for firing dynamite sky-high. The *Scientific American,* 1892, published minute details of construction and flight. Octave Chanute, in his book on "Progress in Flying Machines," 1894, devotes pages to the spectacle of its flight, three miles high, and disappearance, rising higher, ten miles away.

Mr. Chanute thought this a "very interesting example of partial aspiration." Later, on his last visit to me, he confided to me his belief that inanimate surfaces cunningly balanced and continually balanced could fly. I had done it. So had Lancaster before me. I have had papers from him since which mathematically demonstrate the absolute certainty of such poising and hovering and soaring without other aid than the wind.

His actual experience is weird. Disguised in raiment painted like a dead tree-top he has watched a large bird, the gannet, poised within touch of him, in mid-air, asleep or with eyes closed, balanced, motionless, with only the slightest occasional ruffling of its plumage. When touched with a pole its eyes opened, and, disconcerted, it slid backwards a few feet, and regained its former position and repose.

A bird's wing is a complex combination of curved, stiff and elastic surfaces—the curves and stiffness being greatest forward, and the flexibility and capacity for separating being greatest aft, or in line of undulatory airflow, which is absolutely unpreventable. Wings move or operate upon fixed pivots, at any angle or inclination, controllable by will or power, and also automatically by wind and gravity.

Wind never flows "straight along," and in its general direction it never ceases to vibrate, oscillate or undulate in all manners or directions as an elastic, flowing stream, acting forcibly upon any suitably arranged and adapted surfaces, to urge the complex whole forward or to buoy it up, with no power lost save through friction.

The bird is a balanced, pendulous weight, wholly and in parts and particles. His vital functions render his flying features less competent than an inanimate structure of equal flying power may be.

This is not a problem, but a solution. Any apparatus fairly conforming to the conditions will fly or float in due proportion to its proper structure. As I make a specialty of captive ballooning I have found a captive carrying a free-swinging, pendulous line, having a degree of elasticity, very useful in testing any flying or soaring features, with absolute safety and little expense. The next competent suspensory is the kite, single or tandem, but it does not afford opportunity to experiment in light airs or calms.

"Success results from knowing what one wants to do, and acquiring skill to do it."

A Limousine Monoplane

AT last we have the limousine aeroplane! The Bleriot factory which built it have called it the "aerian carriage."



Photo by Paul Thompson, N. Y.

The Limousine Aeroplane

It has been constructed for M. Henry Deutsche (de la Meurthe). Nothing has been neglected to make it as comfortable as the automobile limousine; the walls are padded to deviate any jolts from a brusque landing, and a speaking tube runs from the interior to the aviator's seat.

The machine has recently been completed and will be tested out at Pau, France. It is doubtless the first aeroplane fitted for comfortable touring.

The aeroplane is a Bleriot type, equipped with a 140 horse-power Gnome motor.

Jules Vedrines Injured

WHILE flying at Villa Coublay, France, on December 8, Jules Vedrines, the noted aviator, fell one hundred feet and was badly injured. The machine turned turtle according to reports and Vedrines was thrown so hard that both legs are said to have been broken and his arms fractured.

Kites Aid Solutions of Aeronautic Problems

Navy Proves Merit of Scientific Flying

LONG before the inception of aviation many persons devoted their attention and time to experimenting with kites. With the rapid development of aeronautics, inventors and constructors, amateurs and professionals are numerous who devote much time to the study of aeronautical problems by means of the humble but none the less scientific kite.

Recently there was held in Paris, France, a kite competition. It was interesting to note that twenty entries appeared and that most of the kites were home-made. The competing kites were divided into two classes based on size. Those under one metre (39.37 inches) and those over one metre. The largest kite was under two metres.

A stiff gale was blowing and the violence of the wind was such that not one of the competing kites was intact at the end.

There were three competitions, viz., height, weight-lifting and originality. Under the unfavorable conditions, however, they were all merged into one.

All the competitors found difficulty in getting their kites above three hundred feet, owing to the conflicting currents at that altitude. Nevertheless several reached between eight and nine hundred feet and one climbed up more than one thousand feet.

The play of cord allowed was three thousand three hundred feet, and the task of the judges was no easy one. Kites broke away before their height and value could be gauged and the impossibility of judges being at hand when others were at their best prevented decisions at the time of the meet.

Such a meeting of an aero club kite section in competition is something to be encouraged and this may offer suggestions to the more enthusiastic members as to how they can occupy their time at this season of the year when aeroplane flights are not much encouraged in the North.

There is certainly much knowledge to be gained from such a competition aside from the interest that is aroused in favor of the club holding the meet. It is a source of new members as well as good advertising for the club.

To demonstrate the value of huge kites as compared with the modern "basket-work" military masts for the use of spotters in locating an enemy's ships and communicating with the "man behind the guns," Samuel F. Perkins, the young Boston kite expert and adviser of the navy department in many things aeronautical, has just established a school at Hempstead, Long Island, where he is teaching officers of the navy the possibilities of man-carrying kites as a means of sighting objects at great distances from vessels at sea.



Photo, courtesy of H. M. Neely

Man-lilting Kites

Naval officers are being carried by the kites invented by Perkins from 400 to 500 feet above the deck of the cruiser, from which point of vantage they can view objects distant from the base of operations more than two-score miles.

The air craft used by the Boston man are of a series of hexagonal or biplane box kites separated by lengths of string which are supposed to hold each kite in a different stratum of air. Beneath these contrivances of cloth and framework the man is suspended in such a manner that his vision is clear in every direction. He is enabled to see many miles on a clear day and to immediately communicate to those controlling his movements just what is in sight.

America Lags In Military Aeronautics

General Allen Appeals for Officers and Men

(From the Report of the Chief Signal Officer of the United States Army, General James Allen.)

THESE reports have recorded during the past four years the progress of military aviation by the Signal Corps of the Army in a concise form, beginning with the first contract for the purchase of an aeroplane designed by the Wright Brothers, the specigcations for which were issued by this office in December, 1907. The progress and development of this auxiliary to the military establishment during this period is believed to be without precedent. Although the United States was the first nation to recognize the aeroplane for military purposes, and carried out the first official Government tests of an aeroplane in 1908, 1909, at Fort Myer, Va., yet, such has been the phenomenal progress in this science and art that this country has been left far behind in securing practical equipment and organization for the use of this recognized indispensable adjunct to war.

The Army appropriation act for 1912 includes an item of $125,000 for the purchase, maintenance, operation, and repair of aeroplanes and other aerial machines, and $25,000 of this fund was made available immediately. This enabled the Signal Corps to purchase and supply the maneuver division, organized at San Antonio, Tex., with a small aeronautical equipment, which was used for the training of officers and for actual reconnoissance work in division maneuvers during the period from March to July of the current year. An aviation school has been started at College Park, Md., in the vicinity of Washington, for the training of specially selected officers in the military use of aeroplanes and in accessory subjects. At present the aeronautical equipment of the Signal Corps consists of five aeroplanes and three small captive balloons. There are at present six Army officers holding a pilot's license for the operation of aeroplanes. The Signal Corps is at present confronted with the situation of having means provided for starting the development of aviation in the Army, and the War Department is unable to detail the necessary officers to be trained as aviators. In order to develop aviation it requires two essential things, namely, money and officers and men; either one of these without the other brings all adequate development to a standstill.

The past year has been one of continued achievement in aeronautics, especially as applied to aviation. The most notable progress in military aeronautics has been accomplished by France, Germany, and England. The past year has witnessed the development of the hydro-aeroplane, which is a new type of vehicle capable of locomotion, either in the air, on the surface of water, or on the surface of the earth. The attainment of this object opens up a substantial extension in the use of aeroplanes, both for military and naval purposes, and especially for general co-operation of the Army and Navy. Cross-country flying has reached the point where a single aeroplane has made a successful trip from St. Louis to New York via Chicago. This has been accomplished without transporting any special mechanician or special repair kit. During the year the speed has gone up to about 80 miles an hour, and as many as a dozen passengers have been carried in an aeroplane. Continuous flights have been made of over fourteen hours, and the distance reached in continuous flight has been about 400 miles. The altitude has been increased to about 13,000 feet, and English and United States mails have been officially transported by aeroplane. For military purposes it has been conclusively shown that the two-place machine is necessary for reconnoissance purposes.

In order to secure accurate and reliable military information the observer must be able to give his sole attention to the terrain below, and this is most important, since all objects seen from an aeroplane appear in an entirely different perspective from the same objects viewed by an observer upon the surface of the earth. The military airman must be specially trained by continued practice to accurately discern and report the objects below him. In other words, it is necessary that he must possess to the highest degree the qualities of a soldier, and in addition must be carefully trained in making observations in flight.

France has continued to be a leader during the year in the practical organization and development of aviation to serve the mobile army. In the recent maneuvers held on the eastern border of that country aeroplanes were used extensively and were divided into groups consisting of 7 machnes with each of the two army corps, 3 machines with the artillery of the eastern army corps, and 3 at the disposal of the directors of maneuvers. Total, 20 aeroplanes.

The types and makes of aeroplanes used during the maneuvers were 8 monoplanes, Bleriot; 6 biplanes, Henry Farman; 3 monoplanes, Deperdussin; 2 monoplanes, Morane; 1 monoplane, Bréguet.

The organization, transport, and equipment of these groups for field purposes were:

Organization: Each aeroplane, 1 or 2 pilots, 2 or 1 observers, and 6 enlisted mechanics.

Each group or "field-aviation section" consisted

of 3 or 4 aeroplanes with their personnel, transportation, camp equipage for men and machines,, material for supply and repairs, and tents for sheltering the machines in camp.

The supply and transport of these machines was accomplished by the following means: Each field section was divided into three echelons.

First echelon: The aeroplanes, their trucks for transport by road, their "tractors" or traction automobiles for hauling the trucks and transporting the crew, aeroplane tent, repair tools, spare parts most used, enough gasoline and oil for a 375-mile flight, a litter, and surgical material. These tractors have a speed of 25 miles per hour.

Second echelon: The freight automobiles, containing complete spares and reserve supplies. Their speed is slower than the tractors of the first echelon.

Third echelon: Repair-shop automobile.

The first echelon corresponds to the combat train of a field battery. It moved with the combat trains. It camped near corps headquarters. The aeroplane normally traveled by air. On occasions it was placed on its truck and hauled by the tractor. When less time was available the wings of the machines were folded and the aeroplanes hauled on their own wheels. Time, atmospheric conditions, and military considerations governed the method of transport in each case.

The second echelon freight wagons carried extra motors, wings, frames, controls, and in fact all parts necessary to make complete repairs to the aeroplanes. At present the French utilize two such wagons for each section, namely, for three or four aeroplanes. This echelon normally moves with the regimental trains and joins the first echelon at night.

The third echelon consists of a workshop on wheels with automobile traction. It carries a forge, tools and material for repairs to frames and motors. It has an electric light plant for use in night repairs. With this echelon are three 3,000-candlepower searchlights. These were used for the triple purpose of lighting the work, lighting the landing park, and by their beams guiding aviators to their landing places. It is understood that there is one of these workshops with each section.

The French Army actually used five sections, constituted as above, in the recent maneuvers. The Sixth Corps used two sections and the Seventh Corps three sections. These sections were several times moved during the course of the maneuvers. They camped at Villersaxel, Lure, and Héricourt, as directed and required by the military situation in each case.

The section which was used with the field artillery of necessity utilized a different means of transporting its first line supplies. As the cross-country work of artillery would not permit the use of automobile traction, a limber was so arranged as to haul behind it a van, which carried a specially light tent and accessories, spares, tools, gasoline, and oil. Six horses hauled the limber and its van. This van was arranged to carry a disassembled aeroplane, in addition to the spares, tools, etc., above mentioned. The total weight behind the team was about 4,500 pounds, so that this echelon could remain with the artillery on the march and camp with it at night.

At the time of the maneuvers there had not yet been devised second and third echelons for aeroplane sections operating with field artillery.

One of the definite problems solved by aeroplane reconnoissance at these maneuvers was:

On September 9 an officer made four reconnoissances in quick succession. On one of these trips he discovered that a counterattack was in preparation on the right flank. He flew quickly to the nearest brigade headquarters, secured a horse, and, galloping to the general, gave him the information, which enabled timely preparations being made to ward off the blow.

The aeroplanes attached to the field artillery did excellent work in locating hostile batteries. Previously, during target practice, this same section had been highly successful in plotting the hits, thereby increasing the efficiency of fire to such an extent that a distinguished French specialist has said: "Two batteries and one aeroplane are five times more redoubtable than three batteries without an aeroplane."

The French minister of finance in his 1912 estimates for the army has included approximately $1,000,000 for the "extension of the aeronautical service."

The Chief Signal Officer concludes this report with an urgent appeal for additional officers and men to carry on the work of the Signal Corps as now prescribed by law. It is believed that it is the duty of the War Department to present to Congress at its coming session the critical needs of this corps and that if these needs are properly understood there will be no hesitancy in providing the minimum personnel required at the present moment to carry forward the important and diversified work at present devolving upon the Signal Corps of the Army.

New German Record

FLYING at Johannisthal, on December 8, the aviator Suvelak remained in the air with a passenger from 10.32 A. M., until 3.05 P. M., establishing a new German endurance record for flight with a passenger. The total time in the air was 4 hours and 33 minutes.

The flight was made in an Etrich-Rumpler monoplane.

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An Aeronautic Show

IN line with the progressive policy which has been apparent in the Aero Club of America during the past few months, is the announcement by them of the First Annual Aeronautic Show which is to be held in New York under their auspices, May 9 to May 20, 1912.

This movement is of vital interest to every American working in the aeronautic field. A representative of the Aero Club is now abroad signing up the foreign aeronautic manufacturers and it is believed that the efforts to interest them will be successful.

It should be a matter of pride with every man in the aeronautic industry to have the American exhibits equal if not to surpass the excellency of European competitors. This can be accomplished if all will work together to make this aeronautic show a turning point for the industry in America.

The co-operation of the manufacturing interests with the Working Committee of the Aero Club will assure a splendid success.

The New President

LOOKING into the future rather than the past, our confidence is inspired in the platform that the new president of the Aero Club of America has laid down for 1912. We believe the president is not only equipped to lead the club through a successful year, but that he has the ability to aid in carrying out the projects that are outlined in his inaugural speech which appears on another page.

Because the Aero Club of America is the representative body of American aeronautics, it must be national not only in name but in membership as well. R. J. Collier has said that he wants to see the club represent San Francisco as well as it does New York. We hope that this will be carried to a quick fulfilment but it is not probable that Mr. Collier can do it alone. Every member of the Aero Club of America owes an obligation to the aeronautic interests scattered throughout the United States.

If the members will think this over and will co-operate with the president there is no question but what the Aero Club of America will be a truly national one. Like all organizations a majority of the members are willing to sit idly by to criticise ignorantly those who are willing to shoulder the burdens. In such an organization as the Aero Club of America there should be scores of members competent and willing to render every service possible for the good of the club and the interests that it represents.

The affiliated and other aero clubs of the country will judge the Aero Club of America according to their spirit, or absence of spirit, in dealing with vital questions concerning aeronautics. Compared with the progress made by other nations during 1911, America appears miserably behind. True we have had developed a hydro-aeroplane that is proving of inestimable service, and an aviator has flown across the American continent. The Aero Club of France has founded special prizes for aeroplane construction and design and are getting results. Abroad the year has been productive of improved military aeroplanes, passenger-carrying machines, speed machines and hydro-aeroplanes as well.

The Aero Club of America numbers among its members, men of brilliant parts and men who are able to compete with the best brains Europe can produce. There are on the membership roll, constructors, designers and aviators who are the equals if not the masters of any they can bring forth on the other side of the Atlantic. Yet what have they done during 1911 to give an impetus to aviation in America? Some of them would continue their experiments whether they belonged to the club or not, but how about the others?

There is sufficient wealth in the Aero Club of America to assure almost any reasonable project that could be brought forth. It never has been necessary for America to let Europe set the example in other lines and simply because Wilbur Wright showed Europe the trick necesary for powered aeroplane flight, is no reason for us to expect to keep our heels warm in the flame of that glory.

If the individual members of the Aero Club of America will put their shoulders to the wheel, Mr. Collier has the ability and will set an example for aero clubs all over the world.

Get busy and create a little heat of your own and you will be surprised at the warmth of the accumulated fire.

"Aero Clubs"

IT was only a few years ago that aero clubs were being organized all over the country, "to encourage and advance in every way the art and science of aeronautics and aviation." They all had the usual officers and many of them a "board of governors." Because most of the machines built at the time by some of the members did not fly or because the clubs could not raise money enough to buy an aeroplane that would fly, interest seems to have lagged.

The result was that their principal contribution to the advance of the science of aviation was to hold up every department store or real estate operator who brought a machine to their city to fly, for passes for themselves and family and friends, because they belonged to the "aero club." When an important advance was made in aviation or an unusual flight was made they were quoted in the papers of the vicinity as prominent authorities of the country on aeronautics. Now as a matter of fact as late as 1910 there were many members of some of these clubs that did not know a monoplane from a biplane and some still think that the fuselage is an honorary decoration that aviators wear.

If you will be fair, we think you will agree that the aero clubs in general throughout the country have done about as little to promote the science of aviation as the home for indigent salesmen. It is a matter of fact that there are clubs containing men of ability, men who can design, construct and fly aeroplanes, and who do not do it because they belong to a club that is always going to do "something bigger." Needless to say these "bigger" things seldom materialize.

If there were any disposition shown on the part of aero clubs to do something worth while, there would be no question of their receiving encouragement, for if the proposition has merit there are always those who are willing to lend financial assistance.

The real progress in aviation has been secured by two forces. The constructors, builders and aviators form one of these, and the aeronautic magazine the other. If you go over the lists of aviators in any country in the world it will be found that a majority of them never saw an aero club until they had built a machine or begun to fly. Then, of course, there was a scramble to get them on the membership roll. It adds to the prestige of the club to be able to say, "why so-and-so, who made that marvelous flight, belongs to our aero club."

Aero clubs, think this over! The time is at hand for some real work to be done. Somebody is going to do it, but that does not mean that you are going to get the credit for it undeservedly. You have the ability and equipment in your clubs to do something worth while. Why not begin doing some real work? You won't get in the Hall of Fame by simply wearing a brassard every time an aeroplane flies into your town.

Congress and Aviation

IF the members of the Sixty-second Congress have read the daily papers with any regularity during the past three years they must have discovered by this time that the people who are following aviation, mean business.

It has not taken the French and German nations long to realize the incalculable value of the aeroplane for military purposes. France has recently completed Military Aeroplane Trials in which sixteen different makes of machines competed. The result is that the French Government today has without doubt the most valuable data in the world regarding these machines.

The Italian troubles in Tripoli immediately brought the aeroplane to the front as an indispensable adjunct to the army and navy. The recent revolution in China has brought to the United States an order for aeroplanes for military service.

It is announced that Germany will spend $1,500,000 for the development of aviation corps.

France not only intends to spend as much but some of the prominent aeronautic officials believe that $20,000,000 should be devoted to this branch of the military during 1912.

General Allen in his report to the Secretary of War, regarding Military Aeronautics, says: "In order to develop aviation it requires two essentials things, namely, money and officers and men; either one of these without the other brings all adequate development to a standstill."

The progress made by the Signal Corps in aeronautics is a testimonial to and a vindication of, the strenuous efforts of General Allen.

The least Congress can do to assist in the work is to appropriate funds that it may be carried on along lines and to the extent that it has been done in Europe. The United States by virtue of its early progress in aviation, is entitled to maintain front rank among the nations of the world. Progress should be encouraged and money should be available to develop military aeronautics in every possible way.

Let Congress appropriate $2,000,000 for this work for the coming year. The results will not only justify it but prove that it is a better investment than building a battleship that must go to the junk heap in ten years and possibly be obsolete by the time it is finished.

The sluggishness in aviation in America is due as much to the lack of interest and support of the Government as to any other cause.

President Taft was most optimistic in his views regarding aviation when he spoke before the Aeronautical Society in New York last April. It would seem that the progress in aerial navigation would justify a few suggestions from him to Congress regarding government encouragement and support.

Aero Club President Has Progressive Platform

To Make Association Representative in Fact

(The speech of Robert J. Collier delivered before the Aero Club of America on the occasion of his election to the office of President.)

Gentlemen:—

You may be sure I count it no mean honor to be elected President of the Aero Club of America. To be President of any club which represents America is an honor, but to represent America in this marvelous new science and sport of Aviation, which is to influence so greatly within the next generation the destinies of nations, is not only a high honor—it is a heavy and serious responsibility. I think we may rightly feel that to America belongs the credit of first making possible human flight; on this Club, which represents America to all the world, rests the responsibility of so governing this new science in the land of its birth that we may set an example to all Europe of wise legislation and clean sportsmanship. It is our duty to uphold America's supremacy in aviation by encouraging generously on the one hand every development in the field of science, and controlling firmly on the other those for whom it is neither a science of sport but an adventure or a gamble.

I think we may all feel that the Aero Club of America at the present time worthily fulfills its mission. Here are a few significant facts which show its record and healthy growth during the past twelve months:

1. Increase in membership over November 14, 1910, is:

Resident	Non-resident	Life
88	45	11

making the total voting membership of the Club on November 13, 1911:

Honorary	Life	Resident	Non-resident
8	11	380	145

or a grand total of 544.

2. Increase in Pilot Licenses:
The increase in Aviation pilot licenses from November 1, 1910, to November 1, 1911, is 180%, to wit, from 26 to 73.
3. The Club has acquired a Clubhouse—the finest Aero-Clubhouse in the world, and the only one with restaurant and living rooms.
4. The Club has obtained the use of a magnificant flying field.
5. It re-conquered the blue ribbon of aviation with a single entrant.
6. It finished second in the Balloon world's championship.
7. It is about to hold the first Aeronautic Show worthy of the name ever held on this side of the Atlantic.
8. It has appointed delegates all over the country to pass on Aviators' Certificates which have come to be recognized officially as a standard of merit by the Army and Navy, and has systematized their supervision from the Pacific Coast to New York, with the result that the number of licensed flyers has increased 180% in twelve months.
9. It has passed on, recognized, and compiled an official list of authentic American Records in all branches of Aeronautics, which, together with other official information and statistics given out, has done much to correct the general misinformation circulated throughout the country on the new art.
10. As a bureau of Aeronautic information appealed to from all over the country it has promptly answered by mail, telegraph and telephone many hundreds of inquiries on every imaginable phase of the movement.
11. It has got together a most unique library where practically every current publication dealing with aeronautics is at the disposal of members.
12. It has helped in the organization of every important aeronautic competition of the year.

I must confess that when I contemplate what was accomplished during the past year I feel some misgivings concerning my own ability to equal such a record. It would be an omission I should never forgive myself if I failed to pay tribute here to the man whose energy and devotion made all this possible, and whom only serious illness prevented from continuing his splendid work, my friend and predecessor Allan Ryan. I trust and I know you all join with me in the hope that his health will soon be restored to him, and that he will again be able to give us the benefit of his wise counsel and indefatigable energy. It is true that Mr. Ryan had the benefit of very staunch counselors with whom he would be willing, I am sure, to share the credit for the achievements of the past year. I know this, that I should never have dared to accept the compliment of this nomination had I not been assured of the loyal support of those pillars of aviation in this country—Major Reber, Mr. Wise Wood, Mr. Edwards and Mr. Blair. I must confess that when it was first intimated to me that I might be nominated as your President, I was disinclined to accept the honor. Though I have always been interested in aviation, I have had very little practical acquaintance with the subject and I also had grave doubts as to whether I had either the ability or the time to become the chief executive of so important an organization as is this. The blandishments of Major Reber, however, were not to be resisted, and if you find yourselves saddled for a year with an incompetent president, blame it on the Major. It will only be a year, at most, I promise you. I hereby solemnly abjure all consideration of a second term and unlike some eminent statesmen, I mean it.



Robert J. Collier
President of the Aero Club of America

And now to our platform for 1912. Briefly, the planks are these:

To make this club the representative of American aviation in fact as well as in name. To make its interest truly national in character, so that it represents San Francisco as truly as it does New York, the West as adequately as it does the East. To recognize that our representation of America abroad carries with it certain responsibilities, among them the duty to listen with equal respect to every section of this country. It was an absence of this spirit in dealing with aviation affairs which resulted in the formation of the body known as the National Council of which I happen to be President. While I have no authority to speak I believe that the generous recognition accorded by this Club during the past year to clubs in other parts of the country has made the National Council, which was virtually a protest against the arbitrary exercise of power by this body, no longer a necessity. You have given a hearing to the Clubs of this country, you have helped them with their meetings and you have accorded them representation on your board. I believe this meets to the satisfaction of all concerned the demands of the National Council, and I shall recomemnd to all the Clubs represented in that body that they become affiliated with the Aero Club of America.

One of the most important duties of this organization should be to assist in building up a strong public opinion in favor of Aeroplanes for the Army and Navy. The figures show that while we are second or third in naval strength, we are sixth or seventh in Naval and Military Aviators. This is a pitiable showing in view of the fact that we have the mechanical genius, the men, the courage and the money to equip the finest naval and military aviation corps in the world. Both branches of the service have given this Club generous co-operation in making our pilot license their standard. The least we can do is to help them by every means in our power to secure an adequate equipment.

Another plank in our platform has for its purpose the discouragement of that spirit of commercialism which for a time hung like a cloud over Aviation in America. The cloud is not yet entirely passed over but I think the sky is clearing. This Club and its officers should not only be free from any suspicion of commercial interest but it should resolutely discountenance the exploitation of this noble science. For the benefit of those who have asked the question, I am glad to say that I have resigned as a director of the Wright Company and disposed of all my stock. As a matter of fact my original investment was made entirely on sentimental grounds.

Another issue on which the Aero Club of America should take a resolute stand is that which has cost America so many priceless lives during the past year. Hoxsey, Johnston, Moisant, Ely, St. Croix, Johnston and others are too heavy a toll to pay for the morbid curiosity of a public which is often indifferent to scientific results, so long as it may be thrilled by sensational glides and dips and attempts for altitude. Every meeting sanctioned by this Club and every aviator holding its license should be held strictly accountable for permitting such useless and reckless exhibitions.

In the hope of doing something to encourage the sounder aspects of the sport, I shall ask the Club to accept the trophy which I had proposed as a prize for the winner of the elimination race for the Gordon-Bennett Cup, and to make it instead the Aero Club of America Trophy for the most substantial achievement in the cause of Aviation during each year. It would then, for instance, be left to a committee of this Club to decide whether to award this trophy to Glenn Curtiss for his invention of a Naval hydro-aeroplane or to Calbraith Rodgers for his transcontinental flight, or to Orville Wright for his extraordinary demonstrations with a motorless glider. I feel that such a trophy would represent a sounder contribution to the progress of America Aviation than any mere reward for speed or daring.

I conceive it to be within the range of this Club's legitimate activities to spread statistics and information not only among our affiliated Clubs on the subject of Aeroplanes and balloons, but to go further and

diffuse among the schools and colleges, among the younger generation such facts as will prepare them to take up our work intelligently and create ten years from now a race of Americans to whom flying is as familiar as automobiling has been to us.

Such, in a necessarily sketchy form, is our general platform. Coming down to one or two specific details, we hope that our representation at Rome will convince the International Federation of the correctness of our position regarding the Gordon-Bennett race, namely, that each competing country should be represented by native-born pilots and native-made machines, and that instead of the spectacular but dangerous closed circuit heretofore prescribed, we should have a true test of practical usefulness in the form of a cross-country event. Should the Federation adopt our view, it is my hope that the Committee to select the place for the next International Race, will give evidence of the National Character of the Aero Club of America by selecting some Western or Mid-Western Cities. But that, of course, is the Committee's province to decide.

I have great hopes that we may be able to induce not only the President of the United States, but the Secretary of War and the Secretary of the Navy to attend our annual banquet.

In conclusion, gentlemen, I bespeak for myself, your indulgence and co-operation. There have been some slight divergences of opinion, some unfortunate personal differences in the past, but for the sake of the common cause, in which we have all an unselfish interest, I ask you to let them be forgotten.

I shall do my best to serve you faithfully, I shall expect you to help me not only by encouragement but by criticism, and I trust that this time next year we shall find the Aero Club of America established on even a broader and firmer basis here at home and even more respected abroad than it is at present.

Aerial Laws for France

IN view of the extraordinary progress made in aviation in France, it has been the purpose of the French Government for some time to draw up a set of laws governing aerial navigation in France. These aviation laws, in which the Ministers of Public Works, Posts and Telegraphs of the Interior, Finance and Marine have lent their aid, have just been submitted to President Fallieres for his signature.

The aim is to protect the public as well as the aviators. The code contains laws relating to permission to pilot the aeroplane, airship or a balloon, certificates of navigability, the identification of aerial craft, communications of aerial voyagers with towns and villages and with revenue officials, measures relating to the protection of the frontier and rules governing aeronautic meets or races.

Ryan Prize Awarded Grahame-White

THE first session of the International Aeronautic Federation which has been in session in Rome, Italy, was devoted to the appeal of Claude Grahame-White from the award of the Statue of Liberty prize, amounting to $10,000, to the late John B. Moisant. After a heated discussion and debate the conference decided to give Grahame-White the benefit of the doubt.

The prize of $10,000, which was the largest put up for any one event during the meet at Belmont Park in October, 1910, was originally awarded to the late John B. Moisant, who was subsequently disqualified on a complaint lodged by Claude Grahame-White, who took second place. The matter was taken up at the international conference held in Paris last January when the Aero Club of America filed a counter protest against Grahame-White, charging that he had fouled a pylon in making his start. The international body disqualified Moisant and referred the matter back to the Aero Club of America for adjudication. The Aero Club of America awarded the prize to Count de Lesseps, the third winner.

The conference decided to give Grahame-White the benefit of the doubt owing to the practical impossibility of ascertaining positively whether Grahame-White properly turned pylon 5 at the height he was flying.

Campbell-Wood, representative of the Aero Club of America, submitted a brief which contained an affidavit by Lyttleton Fox relating to the correspondence between the American Aero Club and the Aero Club of the United Kingdom and also with the Aeronautic Federation on the question. He also submitted copies of the reports of the pylon observers, Charles M. Manley and W. D. Gash, and the evidence of some soldiers. Mr. Wood contended that the fouling of the pylon at a height of 200 feet could be perfectly ascertained.

The conference, while not doubting the perfect good faith of all concerned, ruled in Grahame-White's favor with the express proviso that the ruling should not cast any reflection on the qualification or actions of any of the officials of the meet.

Grahame-White, who was present, was allowed to take the floor as a witness. A Swiss delegate was the only supporter of the American club's action. The English airman was highly elated over the decision.

Dirigible Altitude Record

A MILITARY dirigible ascended near Paris, France, to an altitude of 7,069 feet on December 6. It was commanded by Adjutant Reau, of the French army and required more than two hours to reach that height. This is believed to be a record altitude for dirigibles.

How to Build a Powered Model Monoplane

Small Low-Rated Engines Aid Development

By Philip McCutchen

THE expense of constructing this type of model is usually prohibitive to the average experimenter, but nevertheless it is interesting to note the progress that has been made by those who have devoted their time to this particular branch of model building.

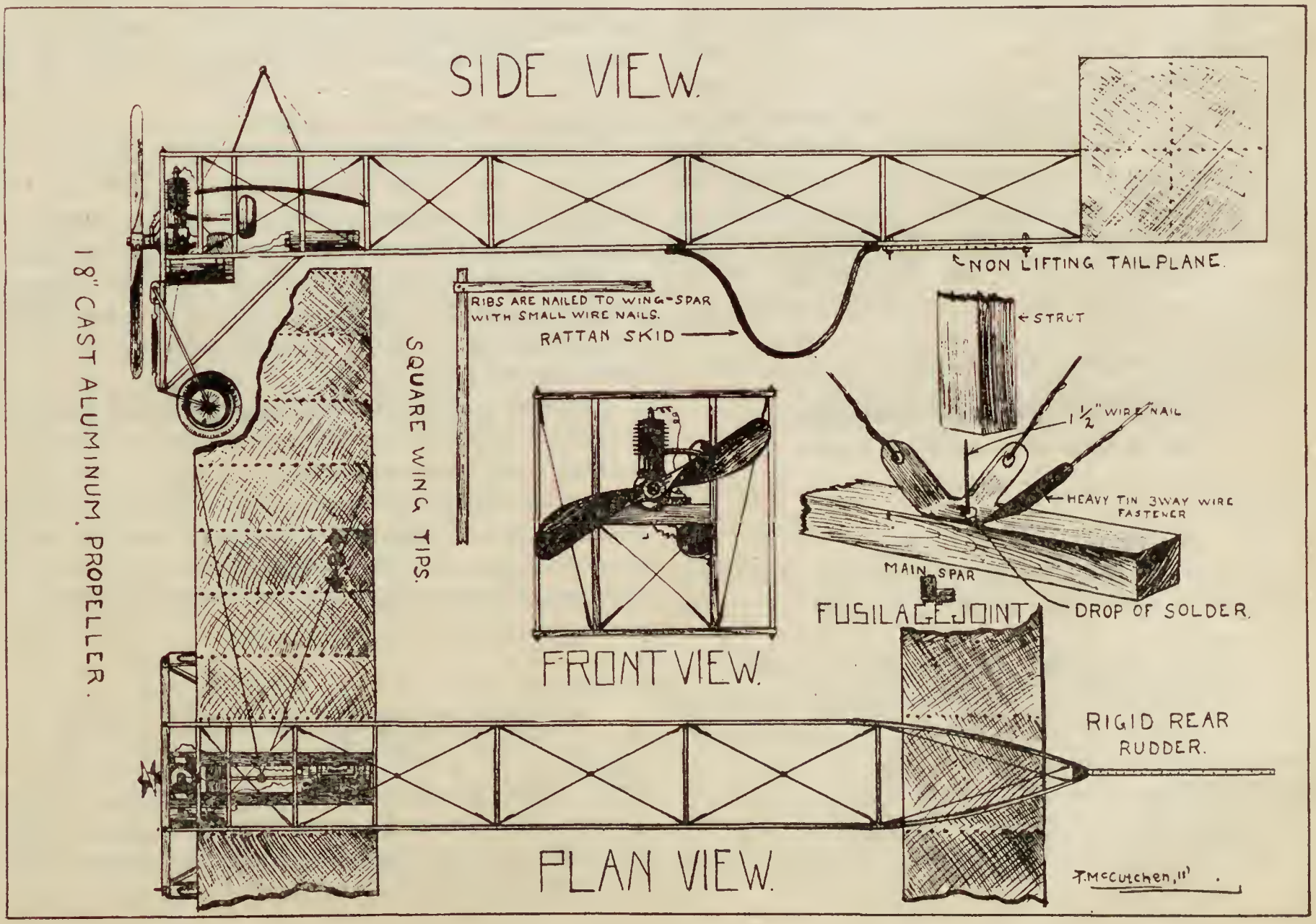
In looking over the accompanying drawings you have probably arrived at the conclusion that it requires a rather large model to support a motor in flight, in which conclusion you are correct as the spread of the front wings from tip to tip is 7 feet 8 inches.

Each wing measures 3½ feet by 15 inches. They are made up of a front and rear wing spar of spruce ½" by ⅜" in cross section. The 8 spruce ribs are separately heated and curved over a Bunsen burner and are then nailed to the wing spars 6 inches apart. The ribs in both the front and rear planes measure ⅛" by ½" in cross section.

All the planes are covered with muslin. The material is tacked on with small upholsterer's tacks. The rudder is double surfaced.

The fuselage is made of ½" by ⅜" spruce. The main spars are 7 feet long. The struts are 1½ feet apart measuring from the rear, with several intermediate struts to brace the engine bed. Instead of using strut sockets a simple combination of a 1½" wire nail and a three-way tin wire fastener is resorted to. The nail is driven through the main spar and the wire fastener is slipped over the end, a touch of solder is then applied to prevent the nail from slipping out when the frame is assembled. This point is clearly illustrated in the drawing.

The front landing frame is made of ½" by ½" spruce. All the joints are bolted with 1/16" bolts one inch long. Light steel tubes ¼" in diameter are used to run the aluminum sleeves on. These sleeves serve as attachment for the rubber springs and the radius rods running down to the wheels.



Two steel tubes are joined to the lower corners of the frame and are run diagonally up to the fuselage. These serve as buffers in aiding the frame to withstand the heavy shock of landing. Four inch pneumatic tired cycle wheels serve in starting and as direct contact shock absorbers.

The engine bed is made of ½" by ¾" white pine. In order to make it more solid and secure it is carried as far as the trailing edge of the main planes. The batteries and coil are directly attached to this frame.

The rear rudder measures 14 by 14" and is made of ⅜" by ⅜" material. All the joints are reinforced with tin as it is neecssary that this surface be perfectly rigid.

A one horse power motor furnishes the necessary motive power. The motor is fitted with an aluminum propeller 18" in diameter. This rating is secured at a speed of 2400 R. P. M. Carburettor and gas tank are made integral. The oil and gasoline are both placed in this tank in proportionate quantities thus obviating the necessity of the extra weight occasioned by the use of an oil tank.

The front of the fuselage is 9 inches square; this tapers down to 6 inches at the rear. The height of camber of the main planes is 1½" and the angle of incidence is 7 degrees in relation to the fuselage. The non-lifting tail at the rear measures 4 feet by 14". The front landing frame is 18" square.

Flights of ½ mile have been accomplished with this model in calm weather. Four flights were made in one day with only one small breakage in the landing frame. A great deal of testing and measuring of fuel is required in order to regulate the flight. It has been determined by experiment that a non-lifting tail placed flat on the fuselage produces excellent stability, the machine rising nicely and descending at a slight angle. "Grass cutting" should be indulged in by the model aviator in order to properly regulate the machine.

Answers to Model Queries

Formula for Lubricating Rubber Strands

Mix 1 part glycerin to 2 parts of water and apply to rubber.

Built Up Ribs Not Required

The side of the plane that should be covered is the under side. But most people prefer to cover the top, as it looks neater.

White holly or spruce are both excellent woods for ribs. Ribs are easily curved by heating over a Bunsen burner and curving at the same time. The rib should be run quickly through the flame and curved downwards by applying slight force at the same time.

Silk treated is undoubtedly the best covering for models of this size, but the cost is sometimes prohibitive.

A Remarkable Test

ON Wednesday, December 6, the Parker Motor Company, of St. Paul, Minn., gave their new 1912 aero motor its final test, taking from their stock one of their 3-cylinder, 30-35-horsepower motors, which is of their own design and manufacture; they started the motor at twelve o'clock noon on above date and ran continuously until Thursday twelve o'clock at noon, at full speed and full thrust of 320 pounds without stopping and only 11½ gallons of gasoline and 1¼ gallons lubricating oil were consumed during the run.

It is the utmost desire of this company to manufacture a high class, reliable motor that can be depended upon at all times. They are pleased to mail their descriptive folder to any one interested in aeroplane motors. They also manufacture this motor in a six-cylinder, 75-80-horsepower, which weighs 190 pounds complete.

Night Flying In France

WITH the rapid advances being made in the use of the aeroplane in war, Maurice Farman has been devising a searchlight equipment for his aeroplanes so that an aviator may be able to make reconnoitering flights at night. The biplane that is being used at Buc, France, is fitted with two electric searchlights, one on either side of the pilot's seat. The electricity is provided by a dynamo which uses the power of the motor, while a battery of accumulators is carried on the biplanes so that the lights will not fail to work in case the dynamo gets out of working order.

The night aeroplane will naturally be found useful in time of war. The searchlights throw powerful rays downwards to a distance of 1300 feet, so that, it is asserted, when flying at a height of 400 feet, everything underneath the aviator can be seen distinctly. Maurice Farman is endeavoring to set one of the searchlights on a movable base, so that its rays can be turned in any desirable direction.

Another experiment that is giving good results is the use of a muffler for the motor, thus reducing to a minimum the noise of the engine. When flying above 300 feet the biplane cannot be heard, it is said. With the muffler in use the pilot and observer will be able to converse with one another, something that heretofore has been impossible except through special speaking-tubes.

Record Passenger Altitude Flight

AVIATOR PREVOST, piloting a Deperdussin monoplane, and carrying a passenger, reached an altitude of 9,840 feet on December 5. This is a world's record altitude flight for two persons. The flight was made near Paris, France.

Questions and Answers

A Department for All Aero Students

Conducted by A. Roe Bugg

Oakland, Cal.

Dear Sir:

Would you kindly inform me whether the Wright Brothers have a patent on the use of twin tractors? If not, why do other biplane builders not use them?

Is the shape of the Wright main planes patented? I mean the curve at the end of the rear edge.

C. H. C.

Do you mean *propellers* or *tractors?* In any case there is no patent on the right to use two propellers or two tractors. Other biplane constructors have tried to work along original lines and perhaps have been of the opinion that their machines would be more efficient with a different propeller arrangement. Certainly there is no patent on the use of twin propellers.

While the curve at the rear edge is not patented the principle of maintaining stability by increasing or decreasing the angle of incidence of the planes by warping them is most emphatically stated in their patent. On page 451 of "Vehicles of the Air," by Victor Lougheed, you will find the specifications and claims of the Wright Brothers set forth.

Uvalde, Texas.

Dear Sir:

Are there any State laws preventing a man from flying in an aeroplane or any air machine that he himself builds? If so can you tell me what will be necessary for me to do in regard to the same?

Do you have to be a licensed aviator in order to enter into a contest with other aeroplanes for prizes? If so, what is the nearest place that I can procure a license?

R. V.

There are no State laws to prevent you from flying your own machine, but if you have, in building such a machine, infringed on patents that have been granted to other parties, you may lay yourself open to injunctions and suits for infringement.

If you intend to enter any official contests or fly in meets sanctioned by the Aero Club of America it will be necessary for you to procure a license. This is one of the best guarantees that an aviator can have. Accurate information regarding the procuring of such license, and as to the nearest place you can procure one, can be secured by addressing your query to Charles Walsh, 297 Madison avenue, New York City. He is secretary of the Aero Club of America and will gladly furnish you the desired information.

Montreal, Canada.

Dear Sir:

What is the weight per cubic inch of spruce?

L. R. W.

The weight per cubic inch of space is .0150 pounds. The November issue of Fly contained a most complete table for calculating wood weights. Send stamps for a copy of same if you desire additional information.

West Pullman, Ill.

Dear Sir:

Will you please publish as simple a formula as possible for locating the center of pressure in any given plane, when the angle of incidence and the curvature of the ribs are known?

Will you kindly advise me as to means for locating the propeller shaft?

H. L. H.

It is impossible to give a simple formula which will cover the center of pressure in any aerofoil. The velocity of the aerofoil is important as any change in speed will cause a change in the center of pressure. I would recommend that you read G. C. Loening's book, "Monoplanes and Biplanes," for a thorough discussion of the point in question.

In regard to your second question, I would say that resistance is an important factor and that the only place to properly locate the propeller shaft is in such a position that the tail will not be required to maintain transverse balance. If it is a monoplane with a tractor screw, the center of the propeller shaft should be far enough above the center of pressure to maintain the neutral relation between the tail and the weight, and the resistance of the chassis. The only way to get this is by experiment.

Oakland, Cal.

Dear Sir:

Will you kindly let me know if Walter Brookins, who took part in the meet at San Francisco last January, is still alive?

A. G.

Walter Brookins, the aviator, is still alive and flying. He was in New York with Parmalee, Turpin and Coffyn the latter part of November.

St. Paul, Minn.

Dear Sir:

How many pounds will a thirty-foot dirigible lift?
How many pounds will a seventy-foot dirigible lift?
How much would it cost to make each one?
Which is the best gas to use?
Where can I get plans?

J. Z.

The lifting power of a dirigible is based on the capacity of the envelope, which, of course, depends on the shape and can be reckoned if the dimensions are properly given. You should state the diameter and the shape of the ends.

The cost, exclusive of the motor, can be secured from the balloon manufacturers who advertise in the columns of Fly. Consult them also in regard to plans.

Hydrogen gas is, of course, the better to use, but think you will find it very expensive. Illuminating (city) gas should lift about thirty-five (35) pounds per thousand cubic feet, while hydrogen gas is reckoned to lift about forty-seven (47) pounds per thousand.

New Books for the Aeronautical Library

Additional Volumes on the Science of Aviation

(*See* Fly Magazine *Book Department in the advertising section for the latest and best books on aeronautics.*)

The Art of Aviation, second edition, revised and enlarged by R. W. A. Brewer, needs no introduction in aeronautic circles. Its popularity is attested to by the demand for another edition and the development of aeronautics in the short time that has elapsed has enabled Mr. Brewer to give to the reading public this most complete and authentic volume dealing particularly with the development of the aeroplane in Europe.

While the progress made in America is well presented, it is not so complete or so up-to-date as the information that is supplied regarding aviation abroad.

The second edition of "The Art of Aviation," is entitled to front rank among all the books in the English language dealing with aeronautic progress. The accuracy of the details and of the tables is not only of a high order but many of them have been heretofore uncompiled.

One of the tables treats fully of the aeroplanes manufactured during the year 1910 and is unquestionably the most complete compilation of data regarding them that has ever been printed.

Many of the theories accepted in the first edition have since been disputed and Mr. Brewer has taken the opportunity in revising the book to make some important changes.

The revised edition of "The Art of Aviation" contains such an abundance of new matter that no one interested in the progress of aeronautics can feel acquainted with the latest developments in aeroplane construction and theory until he has read it.

The case with which Europe has advanced far ahead of this country makes this record of their work and progress a valuable one.

Among the subjects treated are: A Comparison Between Monoplanes and Biplanes, the Form of an Aerofoil, Early Models, Engine Problems and Principles of Design, Descriptions of Engines, Propellers, Efficiency of Propellers, Materials of Construction for Aeroplanes, Details of Manufacture, Successful Monoplanes, Biplanes, Aviation Records, Mechanical Problems Connected with Flying Machines, the Art of Flying, Future Development, Glossary of Terms and Explanation of the Function of Each Part of a Flying Machine, Appendix of Tables.

Recent Progress in Aviation, by Octave Chanute, is a lecture presented before the Western Society of Engineers, on October 20, 1909. The lecture, like everything else that Chanute did, is an accurate and valuable discussion of aviation up to the time of the talk.

Besides containing twenty plates of early machines and flights, there is also noted in the appedix a chronology of memorable flights, with remarks concerning each flight. Those who are given attention in this section are Wilbur Wright, Orville Wright, A. Santos Dumont, Leon Delagrange, Henry Farman, Louis Bleriot, S. F. Cody, Moore-Brabazon, L. F. Ferber, Esnault-Pelterie, Hubert Latham, Louis Paulhan, Roger Sommer, M. Ellehammer, Alexander Graham Bell, Count De Lambert, Paul Tissandier, E. Lefebvre, Marie Calderara, Glenn M. Curtiss, J. A. D. McCurdy, Le Blon, F. W. Baldwin, Legagneux, Henri Rougier and E. Bunau-Varilla.

No aeronautical library will be complete unless it contains this valuable review of the "Progress on Aviation" by Octave Chanute.

The Law of the Air, by Harold D. Hazeltine, LL. D., is a valuablye series of lectures on the progress of legal thought regarding the rights of individuals and States, as regards the air.

The contents of the book consist of three lectures delivered at King's College at the request of the Faculty of Laws of the University of London. The lectures deal with the following subjects: The Rights of States in Air-Space, The Principles and Problems of National Law, The Principles and Problems of International Law.

While legal theory has occupied itself with some of the problems of the air for a very considerable time, the active period of legislation and judicial decision is just beginning. "The Law of the Air" is therefore a most timely manuscript on the subject and contains a thorough review of the fundamental problems of the air.

Several of the States of the United States, as well as England and France, are anticipating laws to control the air-space. This work of Dr. Hazeltine's should be read by everyone before contemplating the drafting of bills. Without doubt it is the most important work of its kind given to aeronautics and the thoroughness of the discussions contained therein remove any question as to the depth of the researches made by the author in preparing these lectures. There are one hundred and fifteen references cited in the notes covering a wide range of decisions and discussions of the subject at hand.

By this work, Dr. Hazeltine has placed himself as a leader in the discussion of the problems of the air and works that may follow will no doubt give full credit to the valuable information presented in "The Law of the Air."

TRADE TOPICS

The Call Monoplane

The Aerial Navigation Company of America, of Girard, Kansas, besides manufacturing the Call Aviation Engine, has recently turned its attention to aeroplanes. Indeed it was with this ultimate object in view that the manufacture of the engine itself was originally undertaken.

The accompanying cuts show the Call Monoplane. This monoplane weighs 800 pounds without fuel or operator, has a main supporting surface of 210 square feet, and is equipped with a 50 horsepower Call Aviation Engine, turning a propeller 8′ 6″ in diameter of 6′ pitch, approximately 1200 revolutions per minute. The propeller shown in first cut (taken the day before the accident) was 8′ diameter of 5′ pitch and turned 1300 revolutions per minute with same engine.



The Call Monoplane

Just before the accident, however, it was decided that the engine had sufficient power to permit the use of a larger propeller, and the 8′ 6″ diameter, 6′ pitch, propeller was substituted. Repeated shop tests showed a thrust of fully 600 pounds with this latter propeller, turning 1200 revolutions. One of these tests was with a 400-pound dynamometer anchored to a stake, and attached by guys to rear of monoplane. The thrust obtained was sufficient to register the full capacity of the dynamometer—400 pounds—in addition to the power required to propel the ship forward, with three persons on board, and to overcome the head resistence engendered by the 80-mile-per-hour wind current from the propeller—estimated at not less than 200 pounds.

With this remarkable showing in shop tests, the ship was taken to the field, and after several trial runs with the carburetor throttled and magneto retarded, the ship was started from lower end of field up a steep incline. As the operator was a novice it was not intended to allow the ship to get into the air at the time, but he was instructed to advance the ignition and open the carburetor throttle while going up the hill, just to test the capacity of the power plant; it not being for one moment suspected that so heavy a ship would rise while going up a steep hill. The result, however, was both surprise and disaster. The ship climbed right into the air on the up-grade, rising some 50 feet and righting itself beautifully. At the top of the hill, however, the operator shut off the power, and the ship took a header. The operator was unharmed.

It is expected to have another monoplane ready inside of two weeks, and trial work will be continued throughout the winter. With the remarkable showing made by this power plant, the Call Aeroplane and Call Aviation Engine will undoubtedly be heard from to some purpose in the exhibition and prize field during the coming season. It is the intention and plan of the company to also open regular traffic and passenger lines in the near future. The Call Aviation Engine has been designed and built for long distance and duration work, and from the description of the size and quality of the various engine parts, the engine is certainly a remarkably strong and durable product.

The Burgess School

The Burgess hydro-aeroplane has been in active service since its first installation and during the last month over fifty flights have been made, on most of which passengers and pupils have been carried.

On December 4 the set of hydroplanes for the Navy Wright machine were shipped to Annapolis, after they had been thoroughly tried at Newport in maneuvers with the Atlantic Squadron, where Lieutenant Rodgers delivered a message from shore to the battleship "Ohio," lying to some miles off awaiting orders.

Among pupils being trained are H. H. White, of the *University Press* of Boston; H. J. White, of Baltimore, Md., and G. W. Roosa, of Lynn. Among ladies carried during the last few days are Miss M. E. King and Miss Curtis, of Boston; Miss M. Wainwright, Miss F. Webster and Mrs. G. H. Webster.

On November 27 a flight was made over Marblehead harbor with a moving picture machine for the Aviation Film Company, results of which were highly satisfactory.

On December 6 the hydro-aeroplane was used for the first time to go duck shooting. Sam Hathaway took out his rifle and with W. Startling Burgess as operator flew along the coast looking for ducks. A number of shots were made, but as it is difficult to shoot a duck with a rifle the hunters returned with an empty bag.

On the evening of the same day Mr. Webster continued his training on into the evening, finding no difficulty at all in operating under the full moon. Eight flights in all were made during the day.

On December 8, eleven flights were made.

On December 9, Harry N. Atwood, in behalf of the Clayton and Craig Aviation Schools, took delivery of the first of his Burgess hydro-aeroplanes. This machine will be used not only in active training work, but as Atwood's own service hydro-aeroplane.

The shops are busy filling rush orders for hydroplanes, as well as regular orders for Burgess machines.

A Burgess aeroplane and Burgess hydro-aeroplane have been shipped to Los Angeles for winter training. The work will be in charge of Howard W. Gill, present holder of the American endurance record. The selection by Mr. Gill of the Burgess machine was made after a very careful study of the market as he wished to obtain a type thoroughly satisfactory for general work.

The company will also have a school located in Florida to be opened about January 1st, definite notice of which will be made later.

Maximotor Notes

In addition to their present staff, Maximotor Makers, Detroit, have engaged the services of a celebrated Detroit automobile designer, whose cars are being turned out at the rate of over 800 weekly. This engineer has worked a number of years in Europe at the plants where the foremost light engines of the world are built.

He is co-operating with the Maximotor designer, Mr. Dingfelder. The latter is said to have been the first to drive an automobile on the streets of Detroit, which today are choked with autos; and also the first to introduce the spark plug into the United States. His "999" and other celebrated speed boats held the Detroit championship for a number of years.

Geo. H. Smith has just installed a Model 2 Maximotor in the Bleriot he had built by the National Aero Company of New York City and Long Island.

Among the recent purchasers of Maximotors is Lewis Matthews, official and part owner of the Malleable Stove Works of South Bend, Ind., who has now resigned to invest in an aviation enterprise.

Reports from Honolulu indicate considerable activity by F. A. Schaefer, of the well-known importing firm of G. E. Schaefer & Co., Ltd. His Maximotored plane is believed to be the sole aeroplane between San Francisco and Yokohama.

Nels J. Nelson, of New Britain, Conn., who has flown at fairs and gala day celebrations through eight States since he received his 40-50 horsepower Maximotor at the beginning of September, states that his engine has returned ten times its cost in that time. There has been nothing in the way of accident to mar his good fortune.

Nelson is going to hibernate in New Britain and build another plane for next year.

Signal Corps School Busy

THE past week the officer aviators at Augusta, Ga., made thirty-one flights, having a total duration of five hours and fifty-two minutes. The latter half of the week rain prevented the usual daily flying, except one flight in the rain, made by Lieut. Arnold the 15th inst., especially to try out a new magneto cover, which is intended to protect the magneto from rain-water and consequent short-circuits.

The flying began on Thursday, the 7th inst., and all four of the officers made short flights. Flying continued on the 8th and 9th, and during the three days the aeroplanes made thirteen trips, having a total duration in the air of 2 hours and 40 minutes.

The flights of special interest were one around the city the 7th inst. at an altitude of 2500 feet by Lieutenant Kirtland and on the 9th both Lieutenants Kirtland and Arnold went around the city at an average altitude of 2500 feet.

On the 8th inst., Lieutenant Arnold ascended to an altitude of 4100 feet. In addition to being an expert aviator with a Wright control, Lieutenant Milling has been learning to fly the Curtiss type. His instruction began at College Park under direction of Captain Beck and now he is flying very successfully alone.

Wrights Announce New Feature

THE Wright Company are preparing to furnish a number of new features with their 1912 models, some of which will be decided innovations. One of these will be the system of automatic control upon which they have been conducting experiments for some time. Another will be an engine of increased power, with water-jacketed head and muffler attachment. Still another will be a multiple-stepped hydroplane.

They will also embody some new features of design, the result of their recent gliding experiments at Kitty Hawk, N. C., by which their machines will become capable of flying in still stronger winds than heretofore.

Alphonzo Gray, of Boston; A. H. Freeman, of New York, and S. S. Fish, of Los Angeles, have just completed their courses at the Wright School of Aviation at Dayton, and expect to make the tests for securing pilot's licenses within a short time.

Philip O. Parmelee and Clifford Turpin have left for the Pacific Coast, taking with them two Wright flyers, one being a Model "B" and the other a Model "EX." They expect to enter for the Los Angeles meet and will also fill a number of exhibition dates.

IT has been announced that the German Government will spend $1,500,000 for military aeroplanes in 1912. Germany will be divided into districts and each district will have an aeroplane fleet.

How Veteran Aviators Avert Danger on Landing

A tire tearing loose when the aeroplane lands means injury to its mechanism, a possible wreck and perhaps injury to the aviator.

When a tire tears off this way, the tire is at fault. Veteran aviators know this. So now the keenest of them have adopted a tire that *cannot tear loose.*

That is the *Goodyear Aeroplane Tire.* It is held to the rim in a vise-like grip by 42 wires in the tape at the base—21 wires on each side of the tire. Hence it *cannot tear loose!*

This is the Wing Aeroplane Tire used by Atwood, Ovington and Brookins, and by Rodgers in his remarkable coast to coast flight. They use only Goodyear equipment throughout.

GOODYEAR

Wing Aeroplane Tires

Charles K. Hamilton, Rene Simon, Roland Garros, Glenn Curtiss, Claude Grahame-White, Alec Ogilvie, William Hilliard, Harry Harkness, P. O. Parmalee, Capt. Thomas Baldwin, J. A. D. McCurdy, and scores of American and foreign aviators have adopted *Goodyear Aeroplane Tires.* Their verdict, prompted by experience with ALL makes of tires, is vastly significant.

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Aviation Jottings

Oliver B. Sherwood, well known in aeronautic circles in the East, made a thirty-five minute flight from Nassau Boulevard, Long Island, on his third time in an aeroplane. He sailed away over some of the Long Island towns and returned without mishap. When he tried his maiden flights several weeks previous, he attempted to make a circle and smashed his machine. Sherwood has followed aviation for some time.

Glenn Curtiss is now building a hydro-aeroplane rescue boat of 30 horsepower and equipped to carry twelve men. Should this latest device of the Hammondsport inventor prove successful it will prove the great value of the hydro-aeroplane in war and as a means of rescue.

Hunting in an aeroplane has taken firm hold at Mineola, L. I., where Lee Hammond piloted a crack sharpshooter through the air on a bird-hunting flight. Hammond, who flies a Baldwin Red Devil biplane, says that they scooted along at sixty miles an hour, but the marksman says that the birds were easily outflying the aeroplane and he wants it understood that he fired at them from a sportsmanlike distance. Hammond says they could easily have run the birds down. The shooting netted them three blackbirds and two sparrows.

Earle L. Ovington says that he has positively given up exhibition flying and that during the winter he will write articles on aviation and work up some new aeronautic ideas which he has had in mind. He also announces that he will manufacture his own machine for the coming season and that it will be something entirely new.

Claude Grahame-White has arrived in this country and it is said will join T. O. M. Sopwith in the West, where they will give exhibitions along the Pacific Coast.

Charles F. Walsh, since joining the Curtiss aviators at the Chicago meet last August, has been flying the Curtiss racer with which Eugene Ely started in the New York-Philadelphia aeroplane race. The dates he has filled since then include Stirling, Ill.; Eagle Grove, Iowa; Bloomfield, Neb.; Chadron, Neb.; Ogden, Utah; Davenport, Ia.; Neligh, Neb.; Albuquerque, N. M.; Raton, N. M.; Garden City, Kan.; Broken Bow, Neb.; Alva, Okla.; Thomas, Okla.; Houston, Tex.; Rome, Ga.; Winston-Salem, N. C., and Columbus, Miss. All these dates were filled with but few minor accidents and no injuries to Walsh.

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NEW ELBRIDGE ENGINE, 40-60, featherweight, sell very cheap, big bargain. 2100 Broadway, New York City.

WANTED—Position as aviator by young man, 21 years old; good character; two years' balloon experience. Fair knowledge of biplanes and competent to arrange dates. Weight 140 pounds. Gentleman who wrote before please write again, and I will explain how that I knew you wrote and how I did not receive your letter. Address C. B. Johnson, Odessa, Mo., care D. F. Spore.

YOUNG MAN requires financial assistance to go to training school. A great enthusiast. Will make good terms on receipts from flights. Address L. A., care Y. M. C. A., Binghamton, N. Y.

STUDY the buoyancy of air currents by practical demonstration with the "Floater" kite, which adjusts itself to all variations of currents. Address C. S. Matthiessen, 37 N. 57th St., Philadelphia, Pa.

NEW 40,000 cubic foot balloon for sale; all the latest improvements; sewed in blocks; rip panel; detachable valve and appendix; ash hoop and rattan basket; net has double equalizers. Regular price eight hundred and seventy-five dollars ($875). Three hundred and fifty dollars ($350) takes it. Address E. Jorgensen, 1831 Belmont Ave., Chicago, Ill.

IT'S HALF IN THE MOTOR. "A Good Model, Plus an Adequate Motor, Equals Success." The Cellulose Turbine is an internal combustion turbine, designed for model builders. It delivers ⅛ horsepower from 1 to 3 minutes. Complete plant ½ pound. Price $2. Correspondence invited. Co-Operative Aero Association, Muncie, Indiana.

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PARTNER WANTED—To furnish engine for Curtiss 30-ft. aeroplane, latest type, weight 375 pounds. For further particulars address S. B. Moore, 200 Second St., S. E., Minneapolis, Minn.

YOUNG MAN, understands gasoline engines and thorough machinist, will go with some aeroplane company for just his expenses. Address Box 30, care Fly Magazine, Philadelphia, Pa.

FOR SALE—Laminated propeller, seven foot, seven-foot pitch. Price $18. Watson, 5 Orange Place, Newark, N. J.

MANUFACTURING COMPANY wants men for aviators. $100 required. B. L. Gates, 227 Englewood Ave., Chicago, Illinois.

AVIATORS WANTED, state all. $100 course to pupils who contract to fly for us. R. D. Wolfe, Agt. for Sun Exhibition Co., Columbus, Ohio.

25% DISCOUNT on my 1911 monoplane glider frames. 50 left; be quick. H. Wells, 75 Avenue L, Newark, N. J.

FOR SALE—The 50-H. P. De Chenne motor we used the past season giving exhibitions, making hundreds of successful flights, and which is as good or better than new, complete with propeller, etc., $500. Also one new motor for immediate delivery. De Chenne Motor & Aeroplane Co., Monett, Mo.

YOUNG DEAF MAN requires financial aid to go to training school. Ambitious to be aviator. Will make good terms on receipts from flights. Address Geo. E. Hartman, 1616 Seventh Ave., Moline, Illinois.

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Calbraith Rodgers, who completed the trans-continental flight from New York to Los Angeles, has been awarded the Aero Club of America gold medal. This medal has been conferred on less than a dozen aeronauts throughout the world, and is one of the most coveted in the entire aviation world.

Raymond W. Garner, of Davenport, Iowa, states that he was the fortunate winner of the prize offered by a company in Detroit for the best name that would do to describe both the tractor screw and propeller. Garner suggested the name "Spiron," and it was considered best by the company.

Oliver G. Simmons, flying at "Rest Hill," N. J., made ten flights during the week of December 3. William Manna, his pupil, has had four lessons, totaling about 55 minutes in the air. Henry Conover, thirteen years old, made his first flight in an aeroplane with Simmons on December 9. They flew from the Conover farm to "Rest Hill."

The following aviation pilot's licenses were granted at the meetings of the Executive Committee and Board of Governors of the Aero Club of America, held on October 18, 25, November 1, 8 and 13:

Jesse Seligman	No.	64
Harold Kantner	"	65
Mortimer F. Bates	"	66
George W. McKay	"	67
Phillips Ward Page	"	68
Clifford L. Webster	"	69
Claude Couturier	"	70
Beryl J. Williams	"	71
Fred DeKor	"	72
Max T. Lillie	"	73
Dr. Henry W. Walden	"	74
Albert Elton	"	75

Anoher year will see the hydro-aeroplane developed to such an extent that each battleship of the American navy may have its own flying machine, in the opinion of Captain Washington I. Chambers, who has charge of the aeronautical work of the Navy Department. Captain Chambers believes that as soon as a solution is found for the motor problem, the installation of hydro-aeroplanes as a part of the equipment of battleships will be begun. By spring it is expected that the motor will be perfected.

Nels J. Nelson, who has been flying recently at Pensacola, Florida, has had a song dedicated to him by one of America's foremost song-writers. It is called "Spooning in my Aeroplane."

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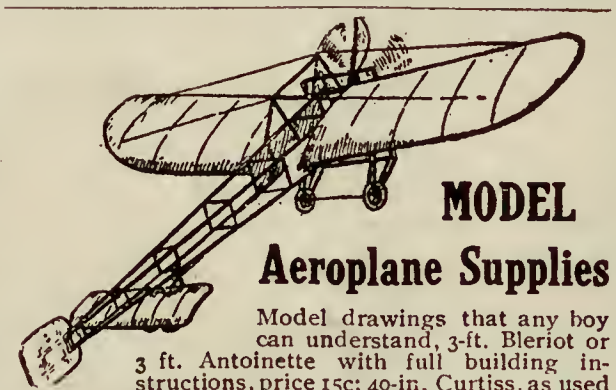
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Oscar Holt, a young Los Angeles aviator, had a narrow escape from serious injury on December 9, when his biplane crashed to earth on Dominguez Field. He had taken his Curtiss biplane out to test a balancing apparatus which had not been properly set. After circling the field several times, Holt started to land and it seemed as if he lost control as the machine plunged to the ground. The young aviator was pulled from the breakage with a few bruises.

Didier Masson, while flying at the Oakland motordrome, at San Francisco, in a Curtiss biplane, crashed into a motorcycle travelling 75 miles an hour, driven by Joe Wolters, the speed demon. Both men were severely bruised.

Calbraith Rodgers has had his passenger-carrying machine assembled at Pasadena, California, and will make exhibition flights at that place.

Frank Champion in a 60-h. p. Bleriot monoplane and Beryl Williams in a Curtiss biplane, were the aviators who welcomed Calbraith Rodgers in mid-air on December 10, when he completed his ocean-to-ocean flight by flying into the surf at Pasadena.

The Young Men's Aeronautic Association has been formed in Lynn, Mass., by twenty-six boys.

The annual meeting of the Aero Club of Long Island was held December 7th. The following officers elected for the ensuing year were: Charles Wald, president; Charles D. Spence first vice-president; William T. Newell, second vice-president; Joseph K. Post, secretary, and Henry I. Newell, treasurer, were re-elected to their respective officers. There will be a change in the board of directors owing to the expiration of the term of Howard C. Brown. Thomas Kramer was elected to fill the vacancy. The directorate for the ensuing year is as follows: Charles Wald, chairman; Francis C. Willson, John H. Lisle, Henry I. Newell, Jr., Thomas Kramer.

Earle Remington, president of the Aeronautical Society, of California, expects to make a cross-country flight with Beryl Williams within the next few days, at which time some experiments in wireless telegraphy will probably be attempted, and effort made to establish communication with the society's wireless station at Dominguez field and the maximum distance of communication determined.

Louis Paulhan, one of the world's most famous aviators, has through The Curtiss Exhibition Company, signed contracts whereby he becomes the exclusive agent in France for the Curtiss aeroplane. Paulhan has purchased a Curtiss passenger-carrying hydro-aeroplane with dual control, which will be delivered to him in Paris about January 15th, 1912.

Jerome Fanciulli, vice-president and general manager of The Curtiss Exhibition Company, will sail on January 6th for St. Petersburg, Russia, accompanied by aviators Hugh Robinson and Eugene Godet, who are to demonstrate the hydro-aeroplane before the Grand Duke Alexander Michaelovitch, president of the Aerial League and a member of the Imperial Aero Club of Russia. Fanciulli will also take to Europe a staff of expert mechanics. Before his return to America, which may not be for at least four months, Fanciulli expects to visit every important city in Europe.

Four pupils at the Curtiss winter training grounds on North Island, San Diego, Cal., have qualified for their pilot licenses. They were Lieut. J. W. McClaskey, United States Marine Corps, (retired); S. C. Lewis, Chicago, Ill.; J. B. McCalley, Harrisburg, Pa., and Charles W. Shoemaker, Olean, N. Y. Aviator McCalley established a new record for the Pacific Coast, and incidentally astonished his instructor, Glenn H. Curtiss, by giving a series of figure eights, remaining in the air longer than any of the other aviation graduates, and acquiring a speed of more than a mile a minute.

Charles F. Walsh will fly at Havana, Cuba, during Christmas week.

Jesse Seligman, son of Albert J. Seligman, the New York banker, made a flight in his aeroplane at the Knutsford race track at Kingston, Jamaica, on December 20th. The young aviator flew about five minutes at a height of 400 feet and then landed gracefully in front of the grand stand. The weather conditions were very unfavorable for flying. The wind blew from the southeast in heavy gusts and few aviators would risk a flight under such conditions. It was the worst weather Seligman has ever flown in. He will give another exhibition to-morrow. On Saturday, Seligman will go to Colon for a flight over the Panama Canal. After that he will proceed to Costa Rica.

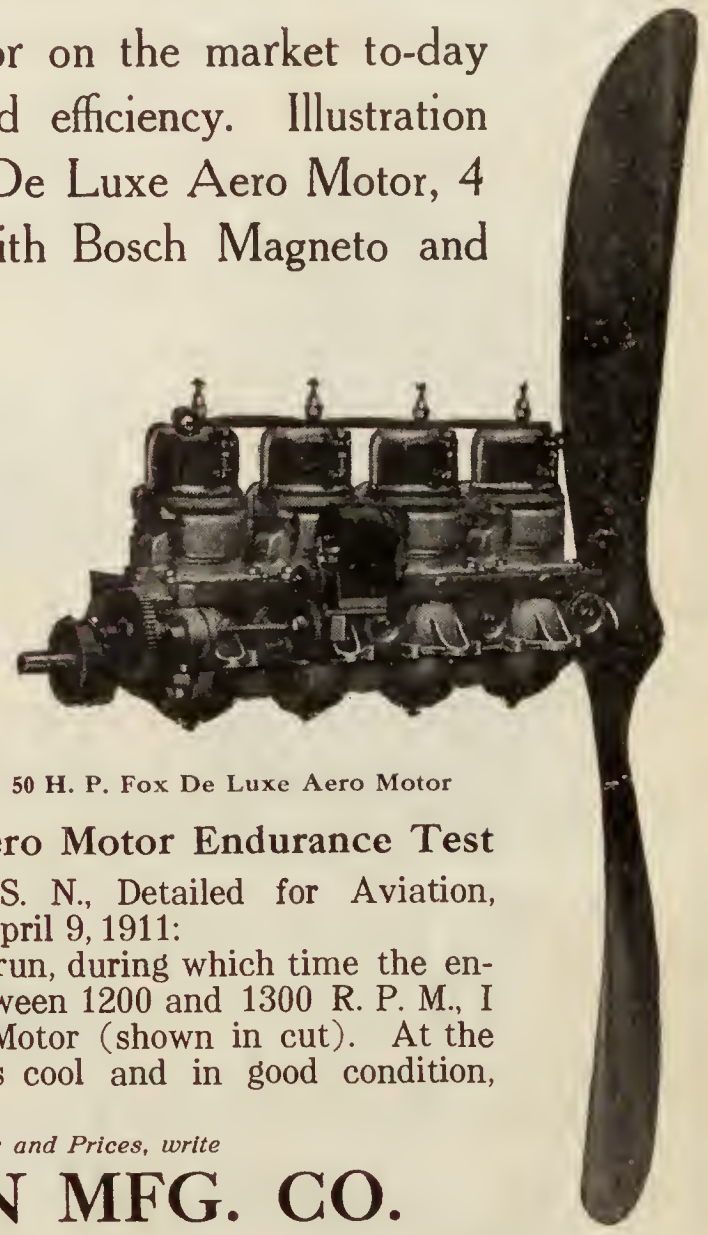
Anthony Jannus, who is now flying for the Benoist School of Aviation, at Kinloch, Mo., qualified for his pilot's license on December 2nd. Jannus was located at Washington, D. C., with Rex Smith for some time and made quite a reputation for himself by taking society girls out for aerial joy rides.

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Lieutenant John Rodgers, U. S. N., Detailed for Aviation, writes on April 9, 1911:

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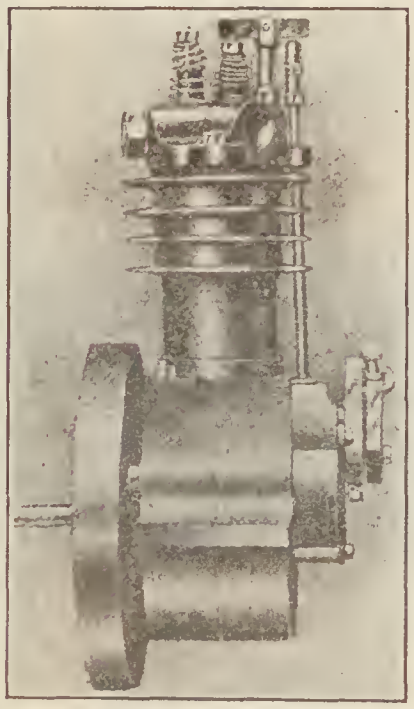
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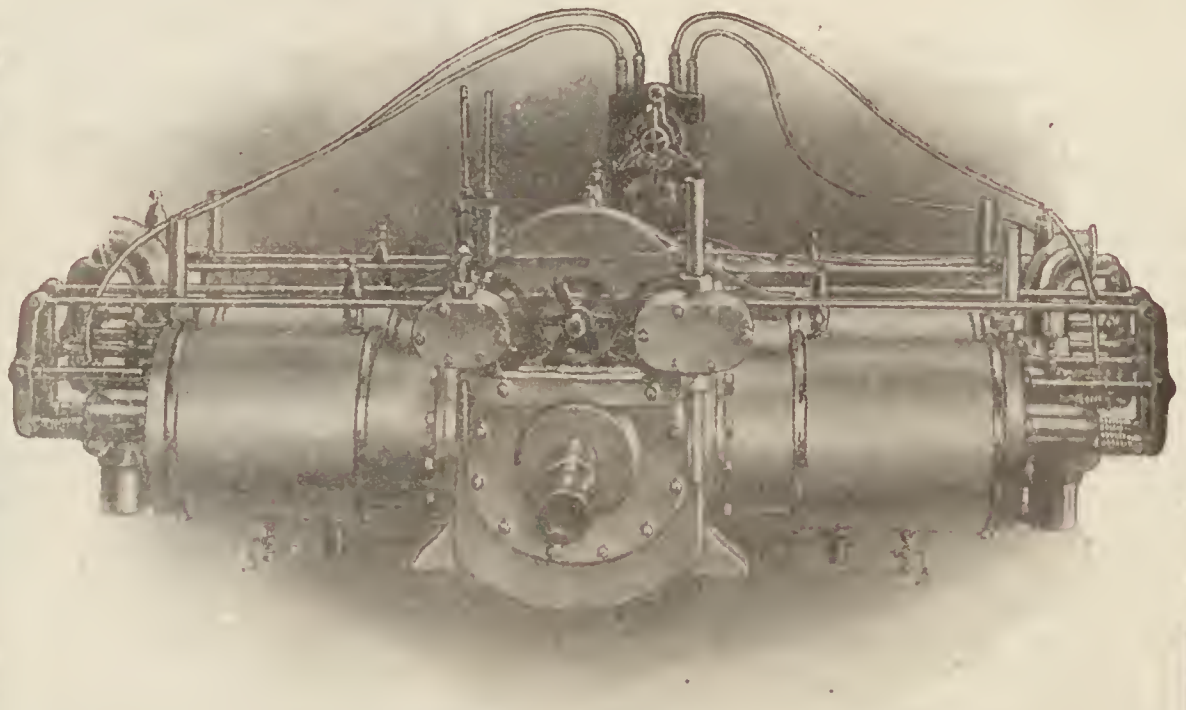
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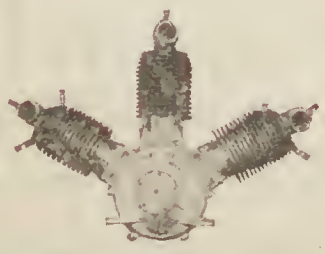
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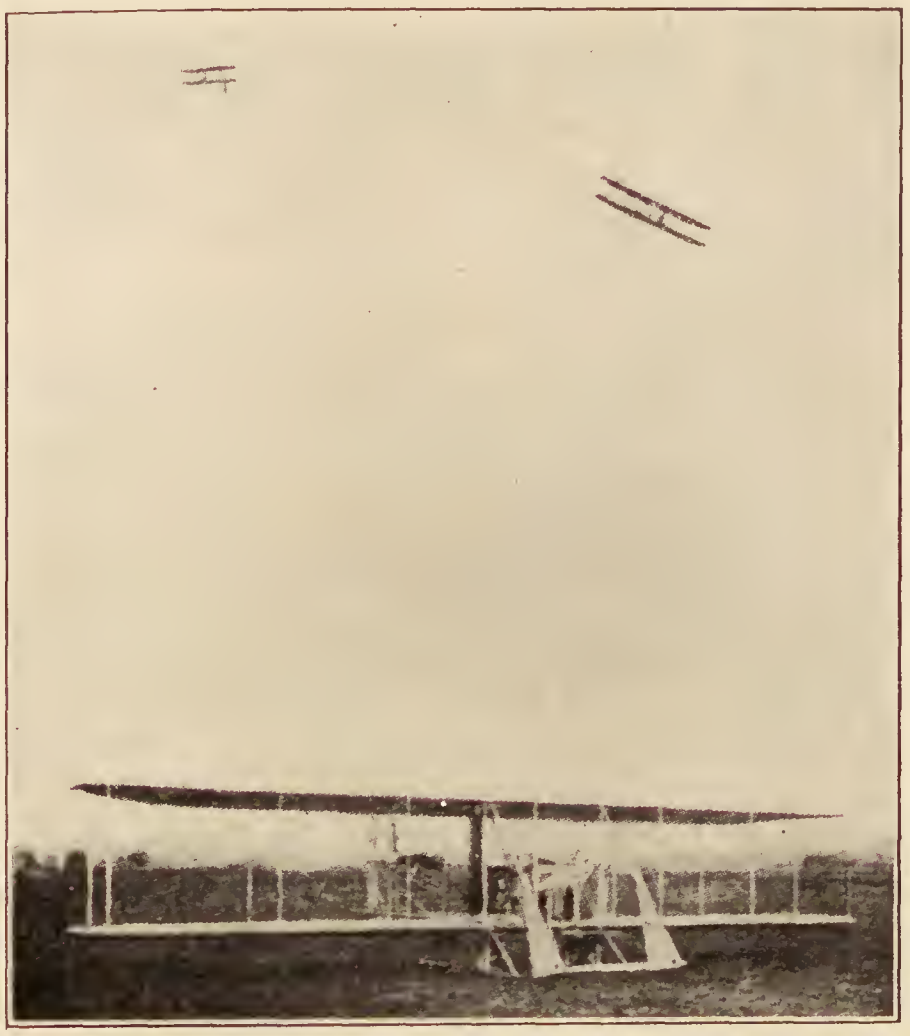
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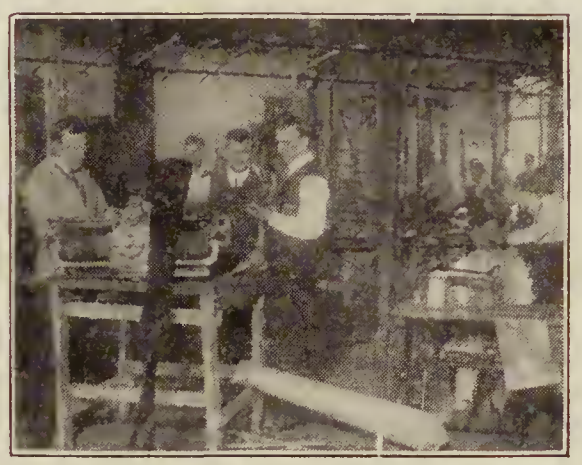
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It is our intention to manufacture the American aeroplane for the purpose of supplying the demand today for aeroplanes of this type. Our type of aeroplane is similar to that of the Curtis, and this is the machine which the United States Government has said, through its actual orders to the Curtis factory, is the *best* aeroplane, for the United States Government has purchased more Curtis planes than any other plane manufactured.

The demand for aeroplanes is tremendous—and is growing larger each and every month. It is our purpose to produce an aeroplane, the equal of any flown today, and to sell such planes anywhere from $2,500 to $1,500 less than any other manufactured.

The directing force of our Company are all practical men. We use the same materials employed in other aeroplane construction and, with proper equipment, we can produce, if necessary, three aeroplanes a week, which would show us a profit of $1,700 per plane, or $5,100 per week; or a total of over $2,000,000 per year. It is our belief that when our factory is in full running strength we will be compelled to exceed this capacity.

Already we have secured communications from hundreds of amusement parks, cities, county fairs, associations, etc., asking for contracts for exhibitions during the coming years of 1912-13. These exhibitions are guaranteed to net the Company as high as $5,000 per exhibition and this work will be directly under the management of Bud Mars.

We have many advantages over every other aeroplane factory in the world.

Aside from the manufacturing feature, this Company owns and operates a school of aviation. Our course in aviation is, in our opinion, the best in the world today. We take students, place them in our factory and teach them not only the theory of aviation, but construction and operation as well. We show them everything about an aeroplane, so that when these students have graduated from our factory each and every one of them should be able to build his own aeroplane and operate it. These students pay us for the privilege of working in our factory and, therefore, the great cost in the manufacture of an aeroplane is eliminated in our product. Other factories are compelled to expend large sums of money for labor. This factory, through its school, turns its labor into a source of profit. All money paid for tuition will be applied on purchase price of machine.

We have prepared a handsome book filled with interesting facts and information regarding our school, with photographs of our students in our factory and on the field—in brief, just the facts and information you will be interested in. It describes fully our "'HOME STUDY COURSE," our "CONSTRUCTION" course and our "COMPLETE FLIGHT COURSE." This handsome book will be mailed you on receipt of 4 cents in stamps to partly cover expense. In writing state which course you are most interested in now. This book should be in the hands of every aviator and student. Write for it today.

Only a Limited Amount of Shares to be Sold

We are selling only a limited amount of stock to complete the necessary improvements in our factory for exploitation purposes. We desire to immediately begin filling as many orders as the capacity of our factory will permit. The Company desires to have at least 10 aviators with their machines filing exhibition dates before the spring of 1912.

If this Company, during the following year, only builds 60 aeroplanes, it will be enabled to show a profit of at least $108,000. If we only have one man flying for us during the year 1912, we believe his earnings will be in excess of $50,000, and it is our purpose to place at least ten men in the field—and we can make dates sufficient to cover this number of men.

We estimate as a minimum for tuition charges for our Aviation School to be $80,000, and we believe tha the figures here computed are indeed conservative from every point of view.

Roughly figured, $108,000 is a very low profit for manufacturing; $50,000 as the earnings of one aviator; and $80,000 income from the Aviation School.

All the stock of this Company is common stock. It is non-assessable and fully paid up. The entire capitalization is $1,000,000, organized under the laws of Arizona and divided into 1,000,000 shares of a par value of $1.00 each.

This Company contemplates selling only a limited number of its shares (of a par value of $1.00) at the price of 25 cents. We do not desire to actually compute the possibilities of the earning power of this stock. But we do say that every aeroplane manufacturing plant in the United States is a close corporation, the stock has all been subscribed by wealthy men and the earning power of these plants is not known. Without the question of a doubt, the earning powers of the Wright, Curtiss, Curtis-Burgess, Capt. Baldwin, etc., are tremendous.

Make up Your Mind Now to Become a Part Owner in this Company

Please remember that this announcement is appearing in the leading metropolitan dailies.



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To every person who buys 300 shares of this stock we will send gratis a complete "HOME STUDY COURSE" (regular price, $50.00). We make this offer with a view of interesting financially as many aviators and students of aviation as possible.

To the stockholder purchasing 2,000 shares or more we will give a certificate entitling such shareholder to each and every one of our three full courses. Thus we will educate you in the actual manufacture of an aeroplane, in the principles and science of aeronautics, and the final and complete operation of a machine under your own control.

We desire to urge upon each and every reader of this paper the necessity of sending in your application, together with your remittance in today's mail, as the number of shares which we have to sell at the 25-cent rate is very limited indeed.

If, however, you want more and complete information with respect to this Company, its purposes and plans, just clip the stock information coupon below and send it to us, and we will be glad to send you, without any cost, a large book filled with facts and figures, letters and photographs, etc., of our factory, of Mr. Mars, of our demonstration and flying grounds—of everything you desire to know.

The par value of this stock is $1.00; capitalization is $1,000,000, non-assessable and fully paid up.

We have appointed Arthur W. Greiner & Co., Industrial Bonds and Stocks, as our financial agents, and we desire that all communications, with respect to the School or to the shares of the Company, be addressed to them. Just use the coupon below.

Stock Information Coupon

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Gentlemen: Please send me your big book containing views of the factory, your flying field, your School of Aviation, and explaining thoroughly the achievements of your Company. I enclose 4 cents in stamps to help pay postage.

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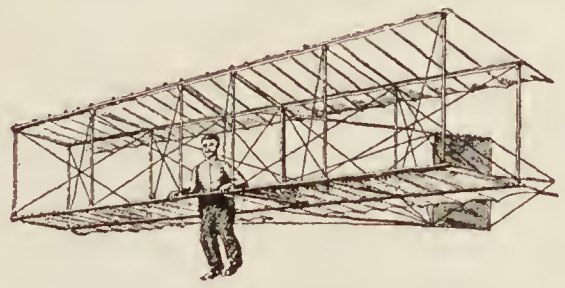
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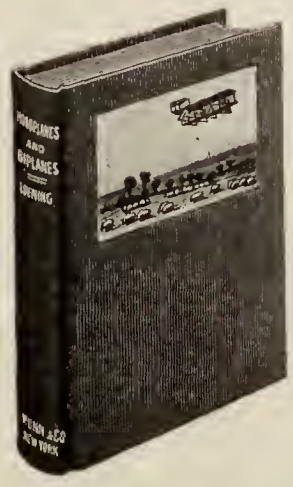
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Fly Magazine

The National Aeronautic Monthly

VOL. IV FEBRUARY, 1912 NO. 4

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An Editorial

Addressed to the Aero Club of America

THE holding of the Coupe Internationale d'Aviation in the United States in 1912 offers the Aero Club of America a splendid opportunity to set an example for the rest of the world by encouraging the American aeronautic industry. It is probable that between $25,000 and $50,000 will be spent by the aeronautic sportsmen of the country to defend the Gordon-Bennett Cup, which was won for the Aero Club of America in 1911 by Charles Terres Weymann in a Nieuport monoplane.

Probably under the progressive policy that now characterizes the Aero Club of America, attention has already been directed to plans for the retaining of the cup in this country in the present year.

FLY believes that in the consideration of this matter the Aero Club of America should concentrate its every effort upon the entry for the defense of the Cup of American-built machines operated by American aviators.

The situation is not the same as in previous years and there is no good reason why, if money is to be spent in large sums, it should not be spent with American aeroplane builders exclusively. The industry in this country is now on a firm basis, and the winning of the Gordon-Bennett Cup in 1912 by an American-built aeroplane would be the means of swinging a large amount of export business to the factories of American aeroplane companies.

While the ruling of the Federation Aeronautique Internationale permits the entry by any country of a machine built under another flag, good sportsmanship, patriotism and duty to the home industry demands that, where it is possible, the country should be defended by machines constructed by the experts in that country.

The Gordon-Bennett in 1911 was won with an approximate speed of 78 miles per hour. We have the word of two of America's foremost aero experts that they can produce machines just as fast.

In an interview published in German papers in Berlin on April 14, 1911, discussing the development of the aeroplane, Wilbur Wright is quoted as saying:

"In my opinion the Wright Baby racer, which flies 80 miles an hour, fulfils all that could or should be wished in the matter of speed. It is comparatively easy to construct a Wright biplane with a speed of 115 miles an hour."

With the statement from one of America's most conservative aeroplane enginers, the writer is quite inclined to believe a communication which was given to him the other day, in which the statement was made that the Wright Baby racer had attained in a private test at Dayton, Ohio, a speed of more than 100 miles an hour.

In a recent interview Glenn Curtiss makes the following statement over his own signature:

"It is true that Europe still exceeds in the matter of speed, but, as speed is altogether a matter of power, the American manufacturer is capable of more nearly rivaling the best records of the European machines at any time he chooses to equip his machines with more powerful motors."

Here are two men who without question can develop speed machines that would win the Gordon-Bennett, if it was made worth their while to devote their time to it. There is no question but what money is going to be spent, and it certainly ought to go toward the development of aviation in America, not France.

In England there are two cries, "Stop the invasion of the American automobile," and "Buy your aeroplanes in England and help the home industry, not France."

Surely, the Aero Club of America cannot ignore the dangerous precedent that they will establish by purchase and the importation of foreign machines for this race; and that this is the time to patronize the home industry and to assist the development of aeroplane types in America.

The Aeronautic Show, planned for May, will give designers and builders a chance to study the well-known types of European aeroplane construction and will no doubt be of great assistance in designing machines. Those who have not had the opportunity to visit the factories abroad will then have the chance to see their finished products with all their latest construction and design. Surely, much good must accrue from this.

There was rejoicing in America when it was

learned that Weymann had won the Gordon-Bennett Cup at Eastchurch, England, in 1911, but who shall say that the satisfaction or the glory was as great as when Glenn Curtiss, an American in an American-built machine, captured the trophy at Rheims, France, 1909?

It may be that there are some who already anticipate the purchase of a Nieuport machine for Weymann and the bringing of the aviator and aeroplane to this country for the race in 1912.

May it be a far thought! The money that it would cost to turn this trick could be better spent and to a greater advantage, if the same sum was turned over to an American aeroplane manufacturer, for the building of a speed machine.

There are nearly a score of competent aviators in this country who can be counted upon to drive racing aeroplanes, and the development of speed machines in this country is only a question of spending the money here.

Should the Gordon-Bennett race not be held until fall, there will be ample time to get together in this country a team of machines and aviators that will be "World beaters."

Let there be real elimination trials. Make it worth the while for manufacturers to enter machines in these elimination races. We have had enough farces, let the Aero Club of America, with their unlimited wealth and long list of aeronautic enthusiasts, stage a real show.

Emile Dubonnet Makes New Balloon Record

Establishes Distance Mark with Condor III

THE world's distance record for spherical balloons was broken on January 8th, when Emile Dubonnet, pilot of the Condor III, and Pierre Dupont landed in a terrific snowstorm near Sokolowa, Russia, a distance of about 1,230 miles from La Motte Breuil, France, their starting point.

The former record was held by Comte de la Vaulx, who made a flight of 1,193 miles October 9-11, 1900.

The voyage of Dubonnet lasted thirty hours and was made in the same balloon with which he competed in the Coupe Internationale des Aeronautes in the United States in October, 1911. This record flight was its second one, and it is feared that the damage that it received in landing in the snowstorm may cause its total loss.

Dubonnet and his companion left La Motte Breuil, a few minutes after midnight, Saturday, January 6th, with eighty bags of ballast. The wind was blowing about sixty miles an hour, and the occupants of the car had several narrow escapes in getting away.

About 3 o'clock the next afternoon it began to snow, and the pilot was obliged to throw our ballast to compensate. Shortly afterwards they passed Cracow, Russia, and to the north of the Carpathian range of mountains.

At 4 o'clock in the afternoon darkness fell and the thermometer stood at 10 degrees above zero. The snow, which had stopped for a short while, began again and more ballast was thrown out.

About midnight the Condor III passed over Kieff. Once more the snow began to fall. Dubonnet caused the balloon to ascend, but there was no wind and the balloon made little progress. The thermometer then stood at 4 degrees below zero.

From 1 o'clock until 4 the occupants of the basket lost sight of the earth. At 4 o'clock the balloon descended and it was discovered that the balloon was being driven backwards.

Remembering the experience that he had in the International Balloon Race in the United States in 1911, Dubonnet immediately prepared to descend, although they still had thirty bags of ballast left in the car.

They alighted on a frozen desert in the midst of a terrific snowstorm at 6 o'clock on Monday morning. The voyage had lasted exactly 29 hours and 55 minutes.

The story from that time on can best be told by Dubonnet himself, as he related it to reporters upon his arrival in Paris on January 13th:

"Leaving the balloon where it was, we at once set out in search of some habitation. After a walk of one hour, we at last found a hut, where an aged Jew and two dirty children were living. Neither of us can speak Russian, and, of course, the Jew understood nothing but that language. By making signs and drawings of all kinds, we persuaded him to bring out his sledge, and we took him to the place where our balloon was lying. We tried to save the gasbag by cutting the net, but this attempt failed, as the whole balloon, on which snow had been falling, was frozen hard. We returned to the Jew's hut and for twenty hours we were obliged to remain indoors

Continued on page 28

Oster, in an Etrich, Flies First in Ceylon



Photo by Paul Thompson, N. Y.
Herr Oster Flying the Etrich Monoplane in Ceylon

ON December 25, Franz Oster made the first aeroplane flight in Ceylon. He used an Etrich monoplane.

The flight was made from the racetrack at Colombo at about seven o'clock in the morning in the presence of less than a score of Europeans.

In trying to avoid the wire at the starting gate, on his second flight, the machine swerved and came to the ground with a crash, smashing considerable of the framework.

The repairs required several days before Oster was able to fly again. The accident was not due to either the aviator or the machine.

Crowds of natives watched the first flight from a distance and many were terror-stricken at the sight of the soaring monoplane.

Fatality Marks Los Angeles Meet

THE first aviation fatality in the United States in 1912, happened on January 22d, at Los Angeles, California, when Rutherford Page, a newly licensed pilot of the Curtiss biplane, fell seventy-five feet to his death.

The accident occurred toward the close of. the program of the third day of the Los Angeles Aviation Meet. Page had entered a five-mile free-for-all race and was endeavoring to circle and come down to the scratch for the start when his machine was caught apparently in a gust. It careened and plunged to the ground, carrying Page with it. When the body was taken to the emergency hospital surgeons said that life was extinct.

Page had qualified for his pilot's license on Saturday, January 20th. He is quoted as saying that he was going to make Lincoln Beachey fly harder than ever, and that he would follow him or break his neck.

Page was 27 years old and a graduate of Yale, class of 1910. His first professional appearance was at Dominguez Field, on the day of the accident.

Glenn H. Curtiss is said to have declared that Page's death was due to his lack of experience and extreme daring. "He was more than fearless," Curtiss is quoted as saying. "He had been called the second Beachey, and it was predicted by all who had witnessed Page's early flights that he would be a world beater if some such thing as happened today did not end his career."

Immediately after the accident the wreckage of Page's machine was piled up and burned to prevent souvenir hunters carrying it away piecemeal.

Aviation and Its Progress in 1911

Rapid Development Assures Its Success

SAID the Philadelphia "Inquirer" on its editorial page, on December 10, 1903, "Professor Langley had a very good reputation before he began to meddle with aeronautics."

Seven days later the Wright brothers made their first powered aeroplane flight at Kitty Hawk, N. C.

Since then the world has revolved a number of times, and each revolution has found the science of aeronautics advanced beyond belief.

"Many of the present generation will live to see the day when mails will be carried, passengers will journey, and freight will be transported as safely in the air as all these things are now done by steam on steel tracks."

Thus ran an editorial in the Denver "Post" on December 18, 1910, the day following the fatal fall of Ralph Johnstone.

It was much easier to be an optimist in 1910 than in 1903.

But who could have said that the very next year would be productive of experiments in mail-carrying, passenger-carrying and freight-carrying by aeroplane?

It is an example of the remarkable and wonderful progress of the art of aviation.

The American public has been slow to accept the era as the "aeroplane age," but it has been forced on them so surely that by 1909 the press began to take an active interest in the doings of experimenters and aviators. Another year found the New York dailies with aviation departments to handle the news.

Be it said that latent interest that has been aroused in America, has been due largely to the exploitations given to the great flights (and fatal accidents) by the press.

As the aeroplane developed, the big dailies encouraged useful progress by the offering of large prizes for aeroplane flights. While the big prizes were not all won, many small ones went into the pockets of the exhibition companies.

Any one in doubt of the importance of aeronautics had but to read the great dailies of the country on the closing day of the year, for with but few exceptions, every great newspaper in the country contained articles regarding the progress of aeronautics in 1911.

Among the papers treating the subject of aviation editorially, was the New York "Sun." The first paragraph is well worth reprinting.

"Aviation has made such advances during the year 1911, that the future of the aeroplane as the automobile of the air is assured, although it may be several years before the aeroplane comes into general use. By general use we do not mean that most people who now go about in automobiles will take to the air, but that many amateurs will fly in aeroplanes for sport and convenience when the machines are made reasonably stable and safe, a consummation which is probably not remote."

The statements made in the "Sun" are born out by facts. There is not a prediction that cannot be verified. The success of the aeroplane is assured; it is only a question of time when it will become as available and more convenient than the automobile.

From an editorial in the Los Angeles "Herald" on November 4, the following has been taken:

"Flying in the air has come to be an accepted method of locomotion. Machines to navigate the air are commercial staples."

Glenn H. Curtiss, in an article in the New York "Times," on December 31, says:

"The most encouraging sign of 1912 to the established builder is the growing public interest in the aeroplane as a commercial vehicle. This widening interest is largely in the machine of the greatest carrying capacity. There is a healthy and steadily increasing demand for machines that will carry one or more passengers, and equipped to make long continuous flights. Builders see in this demand for machines of greater carrying capacity a broadening of the scope of usefulness for the aeroplane."

The New York "Times," on the last day of 1911, published the views of forty-four men, in all walks of life, on the five greatest accomplishments of the year.

The Chinese revolution heads the list, but the remarkable development in aviation secured, for this new science, second place.

Those who endorsed the progress in aviation as one of the remarkable features of the world's progress during 1011, were, the King of Italy; Count Bernstorff, German Ambassador; Jacob Gould Schurman, president of Cornell University; Lyon G. Tyler, president of William and Mary College; Sir Earnest Shackleton and Robert E. Peary, Arctic explorers; John Sharp Williams, Senator from Mississippi; Sir James Barr, Royal College of Physicians; Rev. Dr. Henry Van Dyke, scholar and poet; Haddon Chambers, playwright; Ida M. Tarbell, author; and W. L. Courtney, editor.

If these men thus voice their assurance in aviation how much greater must be the confidence of those who are daily engaged in the work of building, designing and flying!

Let us now look for a moment at some of the developments in aviation during 1911 that are mile-posts of progress, and which have attracted the attention of big-thinking men to the possibilities of the aeroplane.

A feat unparalleled in the history of aviation occurred on January 18, when the late Engene Ely, operating a Curtiss biplane, flew from a point of land twelve miles distant, to the deck of the cruiser Pennsylvania, then at anchor in San Francisco Bay. After partaking of refreshments, he took his place in the aeroplane and soared away over the bay and city, landing again on Camp Selfridge Field.

The lesson that it taught aroused the whole world, and since that time the ultimate equipment of every warship with an aeroplane becomes a certainty.

Glenn Curtiss next occupied the center of attention when, on January 26, at San Diego, California, he rose from the water in his hydro-aeroplane and after a flight of a mile, landed on the surface of the water. Such an accomplishment was heretofore unheard of in this country and it opened the way for the development of a type of aeroplane that undoubtedly is to become the most popular.

Military aviation received an impetus on March 4, when Lieut. Foulois, of the United States Signal Corps. and Philip O. Parmalee, Wright aviator, flew from Laredo, Texas, to Eagle Pass, a distance of 116 miles in 127 minutes. The flight was made in the Wright biplane loaned the Government by R. J. Collier, and christened "Laredo" by the citizen of that place. The flight was a non-stop feat and under conditions approximating those of war. It was an American record for a non-stop flight at that time.

Attention was next directed to Europe, where on March 24, Louis Breguet, builder of the now famous biplane of that name, completed a flight of two miles in his aeroplane, carrying eleven passengers besides himself. The combined weight of the machine and its occupants totaled 2,602 pounds. It was a practical demonstration of weight lifting and established as a fact the possibilities of the aeroplane for the transportation of burdens.

Among the big prizes hung up in Europe was one of $20,000 for a flight with a passenger from St. Cloud, near Paris, to Clement-Ferrand, circling the steeple there, and alighting on the top of the mountain, Puy-de-Dome. The distance is 260 miles, the elevation of the landing place, 4,800 feet, and the time limit was six hours.

Several unsuccessful attempts had been made to win the prize, but it remained for Eugene Renaux, with M. Senoucque as a passenger, in a Maurice Farman biplane, to capture the purse on March 7. The distance was covered in 310 minutes, including a stop at Nievre for dejeuner.

It had been predicted when the prize was established in 1908, that it would not be won for twenty years. Thus again the rapid development of the aeroplane made ridiculous the predictions of man.

The late Pierre Prier next occupied the spotlight when, on April 12, he flew in a Bleriot monoplane, from London to Paris, without stop. The distance covered was 290 miles, approximately, and the time of the flight was 240 minutes. This flight paved the way for the sensational cross-country flights that were to follow.

On May 21, the competitive flight from Paris to Rome was begun amid the incidents of the tragic death of the French Minister of War and injury to several other members of the Cabinet. The race was won on May 26, by Pierre Vedrines in a Morane-Borel monoplane. The actual time of flight was 730 minutes for 842 miles. Garros and Gibert were also contenders, but failed to finish.

The much-heralded Paris-Rome-Turin flight began on May 28, with twelve starters. The real contenders, however, were Garros, Vidart, Frey and Beaumont. There was a limit for the elapsed time between Paris and Rome, and the distance was covered by Beaumont in 82 hours and 5 minutes. He became the winner of the race to that point. The contestants were not allowed to start on the last leg until June 10, but by that time accidents and bad weather, together with the tremendous perils to the aviators on the last leg, caused Vidart, Garros and Beaumont to give it up. Frey pluckily started, but fell some distance from Rome and was so seriously injured that he did not leave the hospital until September.

On June 11, began the German Circuit, which was to cover a course estimated to be 1,166 miles. The controls had to be reached by certain dates or else the distance covered would not be allowed. The starters were all accompanied by German army officers and the race was replete with sensations. It was won on July 9, by Benno Koenig in an Albatross biplane with a distance of 936 miles. Koenig failed to start some portions of the Circuit on time and yet his totalization was better than any of his competitors.

The European Circuit, which began on June 18, was marred by the death of three aviators. Fifty areoplanes started and the race was in doubt until the last moment. Again Beaumont came out victorious.

The final official times of the men were as follows: Beaumont, 58 hours and 34 minutes; Garros, 62 hours and 17 minutes; Vidart, 73 hours and 32 minutes; Vedrines, 86 hours and 34 minutes; Gilbert, 89 hours and 42 minutes; Kimmerling, 93 hours and 10 minutes, and Renaux, 110 hours and 44 minutes.

The race started at Vincennes on June 18th, and the route led through Rheims, Liege, Spa Liege, Utrecht, Breda, Brussels, Roubaix, Calais, Brighton, London; return to Calais to Paris to Vincennes.

The English had placed great hopes in the showing that their own products would make in the Eng-

lish Circuit race around Great Britain. Of thirty entries twenty-one appeared at the starting field on July 21. The race, however, narrowed down to a battle betwen Beaumont on a Bleriot monoplane and Vedrines on a Morane-Borel. The course was 1,010 miles, and Beaumont succeeded in coming home a winner over Vedrines by more than an hour. The actual flying time of Beaumont totaled from control to control, was 26 hours, 56 minutes and 56 seconds, the time occupied being six days. On August 4, Valentine limped home, being the first English entrant to finish, while on August 5, Captain Samuel Cody crossed the line and secured the honor of being the only entrant to finish in an all-British machine. The result of this race stirred the British up considerably, for all the English prize-money found its way into French Banks.

America next claimed attention when Harry N. Atwood flew from St. Louis to New York and established a new world-record for cross-country flights. The time occupied in making this flight of 1,265 miles was from August 14 to August 26. Atwood used a Burgess-Wright biplane and his actual flying time was 28 hours and 31 minutes.

A non-stop duration flight of 11 hours, 1 minute and 29½ seconds, by Fourny, at Buc, France, on September 1, when the aviator covered in that time 449 miles, astounded the world. A Maurice Farman biplane was used.

On September 17, Galbraith Rodgers left New York in a Wright biplane to fly across the country to the Pacific Coast. After many accidents and bad flying days, he reached Los Angeles, California, on November 5, having covered 4,231 miles in the actual flying time of 82 hours and 4 minutes. This established a new world-record for cross-country flights and one which bids fair to stand for at least six months.

September 16 is a day that will be remembered in France, as marking the death of one of its most brilliant men in the aeronautic world. On that date, Edouard Nieuport, designer and builder of the famous Nieuport monoplane, died as the result of a fall received in his monoplane the previous day.

In October the world of aeronautics directed his attention to America, where, on October 24, Orville Wright, in a motorless glider, remained almost stationary in the air for 9 minutes and 45 seconds, a feat without parallel in the world's history. The flight was made at Kitty Hawk, N. C., where the Wright brothers carry on many of their experiments.

October 31, came as a day that brought sorrow to the hearts of aeronautic enthusiasts in all parts of America, for it was on that day that Professor John J. Montgomery, famous as the inventor of the Montgomery glider, fell to his death in a glider of his own construction near Santa Clara, California.

The most recent event of importance was the flight of A. Gobe at Pau, France, on December 23, when he covered 460 miles in a non-stop flight, and thus became the winner of the criterium prize, for the longest non-stop flight of the year, offered by the Aero Club of France. His time in the air was 8 hours, 17 minutes and 30 seconds. The flight was made in a Nieuport monoplane and offers a comparison with the non-stop biplane flight of Fourny, when he covered 449 miles in 11 hours, 1 minute and 29½ seconds.

The following is a resume of some of the important flights of the year 1911. Many other excellent flights have been made both in America and abroad, but the rapid growth of aviation and the quickness with which many of the records have been surpassed, make them incidental for treatment here.

Paris-Puy de Dome, March 7th.
261 miles—310 minutes (Limit 360 minutes).
Eugene Renaux and passenger.
Maurice Farman biplane.

London-Paris (non-stop) April 12th.
290 miles—240 minutes.
Pierre Prier.
Bleriot monoplane.

Paris-Madrid (Competitive flight), May 21-26.
842 miles—12 hours, 10 minutes. (Actual flying time.)
Pierre Vedrines.
Morane-Borel monoplane.

Paris-Rome (Competitive flight), May 28-31.
910 miles—82 hours, 5 minutes. (Total elapsed time.)
Andre Beaumont (Lieut. Jean Conneau).
Bleriot monoplane.

German Circuit (Competitive flight), June 11, to July 9.
1,166 miles—(distance covered by winner, 936 miles).
Benno Koenig.
Albatross biplane.

European Circuit (Competitive flight), June 18 to July 7.
1,073 miles—58 hours, 30 minutes. (Actual flying time figured from control to control.)
Andre Beaumont.
Bleriot monoplane.

Great Britain Circuit (Flight competition), July 21-26.
1,010 miles—26 hours, 56 minutes, 56 seconds. (Actual flying time totaled from control to control.)
Andre Beaumont.
Bleriot monoplane.

St. Louis-New York, August 14-26.
1,265 miles—Actual flying time 28 hours, 31 minutes.
Harry N. Atwood.
Burgess-Wright biplane.

Duration flight, Buc, France, September 1.
11 hours, 1 minute, 29½ seconds (non-stop)—449 miles
M. Fourny.
Maurice Farman biplane.

New York-Los Angeles. September 17 to November 5.
4,231 miles—82 hours, 4 minutes. (Actual flying time.)
Calbraith Rodgers.
Wright biplane, model "EX."

Motorless flight—October 24, Kitty Hawk, N. C.
Motionless in the air—9 minutes, 45 seconds.
Orville Wright.
Wright glider.

Non-stop record for distance. December 23, Pau, France.
460 miles—8 hours, 17 minutes, 30 seconds.
A. Gobe.
Nieuport monoplane.

At the Signal Corps School

Augusta, Ga., January 15, 1912.

FOR part of the month, the weather at the School here has been very bad, and there is no relief in sight. There has been very little flying on this account, but on January 4, regardless of the weather and a 40-mile breeze, Lieut. H. H. Arnold made a flight in the Wright machine. He remained in the air fifteen minutes and made a perfect landing, and had complete control of the machine at all times.

After four days of continuous rain, and fearing that the Savannah river would overflow, the officers decided on the night of December 23, that it would be best to prepare all machines for road transportation. The order reached the School at 11.45 P. M., and at 2.10 A. M., the entire equipment of the School and for the machines was ready for transportation, should the necessity occur.

However, the rain ceased on the following day without doing any real damage and things were soon prepared again for active work.

The flight made a few weeks ago in the rain by Lieut. Arnold for the purpose of testing a magneto cover, invented by Marburg Brothers, New York, was successful and it is rumored that all Army machines will soon be equipped with it.

The Officers' School in Aeronautics was discontinued for the holidays and was resumed again on January 9.

Lieut. Milling, who has been on leave of absence, reported at the School on January 6, and is prepared to resume flights in both the Burgess-Wright and the Curtiss.

Lieut. Kennedy, the Curtiss operator, who has been ill in the Walter Reed General Hospital at Washington, D. C., reported at the School for duty on January 6.

A wireless sending set is being adjusted on the Wright machine and in conjunction with this, a wireless pack set will be used for the ground work. It is expected that the wireless will be ready for a test in a few days. The entire wireless equipment was designed and made in the Signal Corps Laboratory, at Washington, D. C.

The Burgess-Wright has been equipped with a Marine compass for cross-country flights.

The School has recently purchased three large and three small "Milburn" acetylene lights for night work and flights.

They have been tried and are quite a success.

Owing to the fact that the South is now passing through a rainy season it is not expected that there will be much flying done at the school until next month.

From FLY's Correspondent.

Mlle. Dutrieu Wins Coupe Femina

THE Coupe Femina, valued at $400, for the holder of the world's non-stop flight record, was decided on December 31, 1911, at Etampes, France, when Mlle. Helene Dutrieu covered 158 miles in 178 minutes. At that point the carburetor became frozen and she was forced to descend. Had this not occurred, Mlle. Dutrieu expressed the opinion that she would have flown 200 miles.



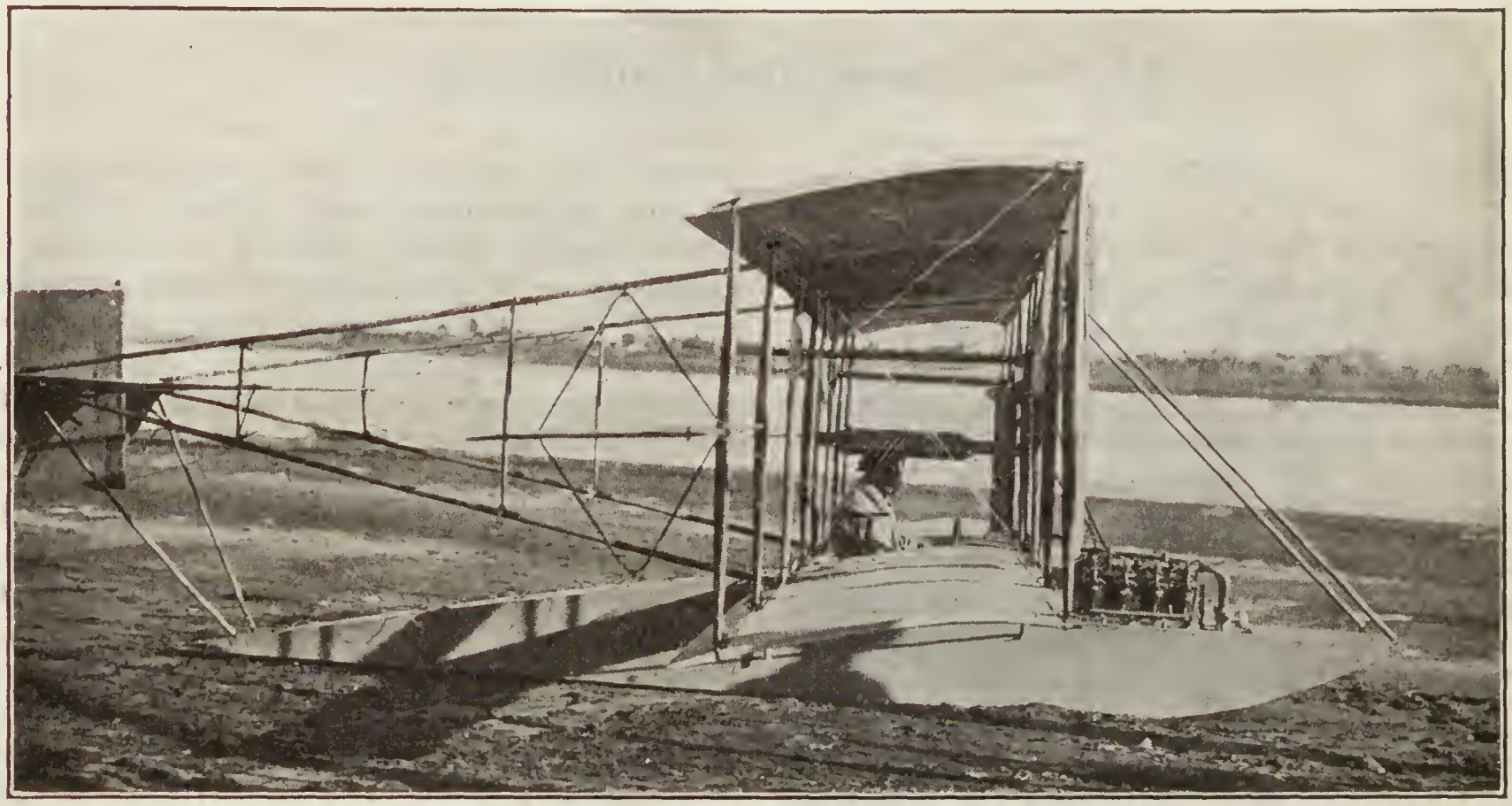
Copyright, Paul Thompson, N. Y.

Mlle. Helene Dutrieu

Flying that morning at Compeigne, France, was Mlle. Jeanne Herveu, who covered 154 miles and thereby exceeded Mlle. Dutrieu's record of the previous year, when she won the cup with 104 miles.

Mlle. Dutrieu was determined to retain the Cup and when she learned of the results of Mlle. Herveu's flight, she had her Farman wheeled out and started to establish a new record and secure the coveted trophy, which she did.

Glenn Curtiss Brings Forth New Air Craft



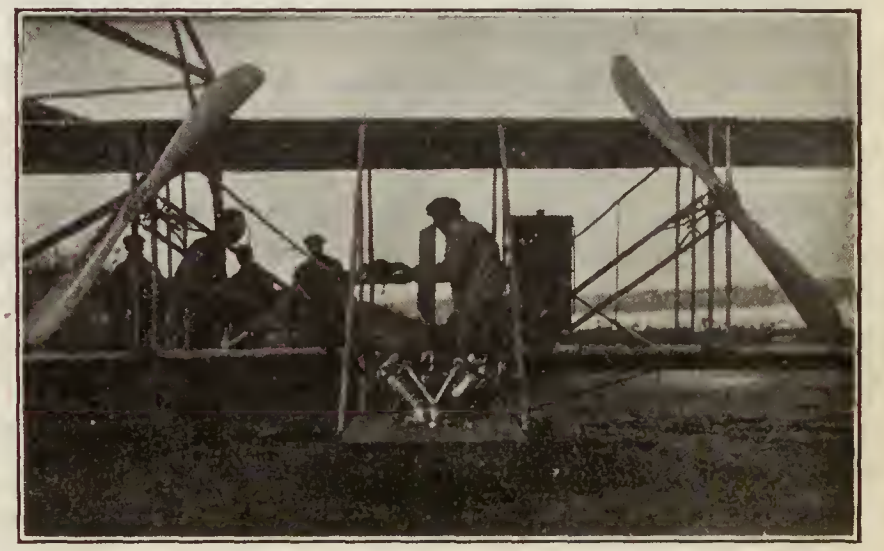
The Curtiss "Flying Boat"

THE new Curtiss hydro-aeroplane or "flying boat" was given its first trials on January 10, on the bay at San Diego, California. The test was made by Glenn Curtiss himself and it proved an entire success.

This machine, which was designed by Glenn Curtiss and constructed by him under strict secrecy at his factory at Hammondsport, is driven by a new type of 60-h. p. Curtiss engine. The public knew nothing as to the details of this craft until it was taken out on the bay in order to test its balance and speed on the water.

The new craft, which is equipped to carry a passenger and is driven by a 60 horse power motor, made tremendous speed in contact with the water, estimated at about 50 miles an hour. It lifted off the water with ease and traveled at more than 60 miles an hour in the air. It differs in many respects from the Curtiss hydro-aeroplane now in use by the United States navy officers, who were present and witnessed the test. There are two propellers instead of one and these are driven by clutch and chain transmission. The motor is equipped with a new automatic starter, which Mr. Curtiss has lately designed, and there is also a fuel gauge and bilge pump.

The boat, or hydro equipment, contains a bulkhead fore and aft, and is twenty feet long, with an upward slope in front and a downward slope in the rear. The great advantages claimed for the new machine are that it is safe, comfortable and quick to rise from the water in response to its control. The hydro equipment, which is more like a boat than anything yet designed and used on the aeroplane, will, it is claimed by Mr. Curtiss, be able to withstand any wind or wave that a motor boat of similar size could weather.



Front View of the Flying Boat

The aviators now at the Curtis aviation camp on North Island are arranging to carry on a number of experiments with hydro-aeroplanes in connection with the Pacific fleet, particularly the problem of launching a hydro-aeroplane from the deck of a warship. The fleet will not reach San Diego for several days, and in the meanwhile Lieutenants Ellyson, Rodgers and Towers and Ensign Herbster have taken up the use of the wireless telegraph from an aeroplane. In these latter experiments they will be assisted by Mr. Curtiss, using the new flying boat, equipped with a 75 h. p. motor.

French Republic to Control Aerial Navigation

All Aeroplanes Must Undergo Tests

PRESIDENT FALLIERES, of the French Republic, has recently signed a charter to control aerial navigation in France, but before it becomes a law it must be voted upon by the French Chamber and Senate.

It has already been countersigned by the Ministers of Public Works, Department of the Interior, of War, of Finance and Marine. It is promulgated in the form of a ministerial decree regulating aerial navigation in France.

While the purpose is about the same as those bills which have been framed in the United States, they differ somewhat and the French charter covers a somewhat larger scope.

The charter was issued to protect the public against inconveniences and risks, which may result from aerial navigation and also the aviators from the dangers entailed by their own imprudence and daring, or by the imperfection of their flying machines. This will give full authority to the French Minister of Public Works to act officially until the aerial navigation law becomes an actual fact.

The decree is divided into five chapters, a synopsis of which follows.

Chapter I., composed of seven clauses, stipulates that no airship (steerable balloon or aeroplane) will be permitted to navigate over French territory unless it is provided with a navigation certificate issued by the prefect of the department in which its owner resides. To obtain that certificate the airship must have undergone all the tests which the State Engineering Department may judge sufficient. To facilitate the application of that stipulation every constructor of a type of airship (steerable balloon or aeroplane) already tested and accepted by the State engineers, is required to give to the purchaser a declaration affirming the fact. Each airship for which a navigation certificate is granted will be given a special number corresponding with that inscribed on the Aerial Craft Register at the Prefecture. That number must always be displayed on the airship prominently, as well as the letter F, indicating it belongs to a Frenchman or a foreigner resident in France. Every modification to the airship should be at once reported to the officials of the State Engineering Department, who have the right to inspect the airship at any moment without previous warning to ascertain that its conditions still corresponds with that described in its navigation certificate.

Chapter II., composed of seven clauses, imposes certain restrictions to the liberty of aerial navigation. Airships are prohibited from landing in towns and villages, except on such spots as may be specially designated for the purpose by the municipal authorities. Neither may they travel over the interdicted zones without special authorization. In the case of an airship passing, wittingly or unawares, over such a zone, it must descend to earth as quickly as possible after its pilot has been warned of the fact by signals, the exact nature of which has still to be fixed. If no special authorization has been obtained airships are forbidden to carry either pigeons or explosives or arms and ammunition. The transport and use of photographic apparatuses are also forbidden unless a special authorization has been previously obtained from the Prefect. The owners of airships are not permitted to furnish their aerial craft with either wireless telegraph or wireless telephone instruments without the authorization of the Ministers of Public Works and Posts and Telegraphs.

Chapter IV., comprising ten clauses, lays down the rules to be observed at starting, on descending to earth, and during flight. The pilot of an airship, having on board the navigation certificate of the airship and his own pilot's certificate, is required to keep a logbook, which he must present whenever called on to do so by the representatives of authority. That logbook should contain the names of the pilot, crew, and passengers, indications of the course followed, the altitude reached, and the relation of the interesting incidents of the aerial voyage, especially descents to earth, accidents, &c. In case it is impossible to make those inscriptions during flight, the pilot must do so within a maximum delay of twelve hours after descending to earth. The representatives of public authority have the right to visit the airship whenever they may think fit to exercise their police or fiscal supervision. In the case of an airship coming from a foreign country landing in France, the pilot should at once warn the Mayor of the nearest town. Every steerable balloon while navigating between sunset and sunrise must show a white light in front and red and green lights on either side like a steamer. Aeroplanes are given temporary permission to carry one lantern only, but it must be placed in front and throw a green light to the right and a red light to the left. In the case of danger or accident to an airship, the local authorities are to render all the assistance in their power, and any one finding the wreck of an tirship should inform the local authorities without delay.

Chapter V., composed of five clauses, concerns State airships, to which many of the stipulations of the decree are not applicable. Those airships are to bear a distinctive mark. The navigation of foreign military airships over French territory is prohibited.

Chapter VI. comprises three clauses. It exempts from the observation of most of the stipulations of the decree regulating aerial navigation persons flying over aerodromes or spaces placed at their disposal. It also enacts that public exhibitions of flight and cross-country competitions can only be organized with the authorization of the municipal authorities and the prefect of the department in which they are to be held. No authorization for such displays will be granted unless the promoters guarantee the payment of the cost of the police and military force which may be required to preserve order and insure public safety.

There is an annex to this decree giving details concerning the position and power of the lights to be displayed by airships, the signals to be made, &c. It also establishes the rule of the road, which may be summed up by the expression, "Keep to the right." However, in the case of an aeroplane meeting or overtaking a steerable balloon navigating at about the same altitude, it is for the former to alter its course if necessary.

A Record Non-stop Flight

THE criterium prize offered by the Aero Club of France for the longest non-stop flight of the year was won on December 23, 1911, at Pau, France, by A. Gobe, in a Nieuport monoplane. He covered 460 miles, approximately, in 8 hours, 13 minutes and 30 seconds. This is a world-record for a non-stop flight.

On the morning that Gobe started on his flight, weather conditions were ideal, and at 8.07.30, the 50-h. p. Gnome-engined Nieuport took the air.

The aviator carried with him about 64 gallons of petrol and 17 gallons of lubricating oil.

Not until one o'clock did the aviator partake of food and then he made a meal of meat sandwiches, cheese and wine.

As the gasoline was consumed, the machine increased in speed and when his essence gave out, which was about 4.25 P. M., the machine was making approximately 60 miles an hour against 52 miles an hour which was the average during the morning.

Gobe obtained his license from the Aero Club of France on July 10, 1910, on an Antoinette monoplane.

The previous record for the greatest distance covered by a non-stop flight, was made on September 1, at Buc, France, by Fourny on a Maurice Farman biplane. He remained in the air 11 hours, 1 minute and 29½ seconds, covering 449 miles.

An Articulated Monoplane

AMONG the new types of monoplanes that have actually flown is the De Marcay (French), articulated monoplane.

One of the seeming necessary advances in aeroplane development is that aeroplanes shall have wings that will fold up, enabling them to be transported in an ordinary manner either by train or over roads on trucks.

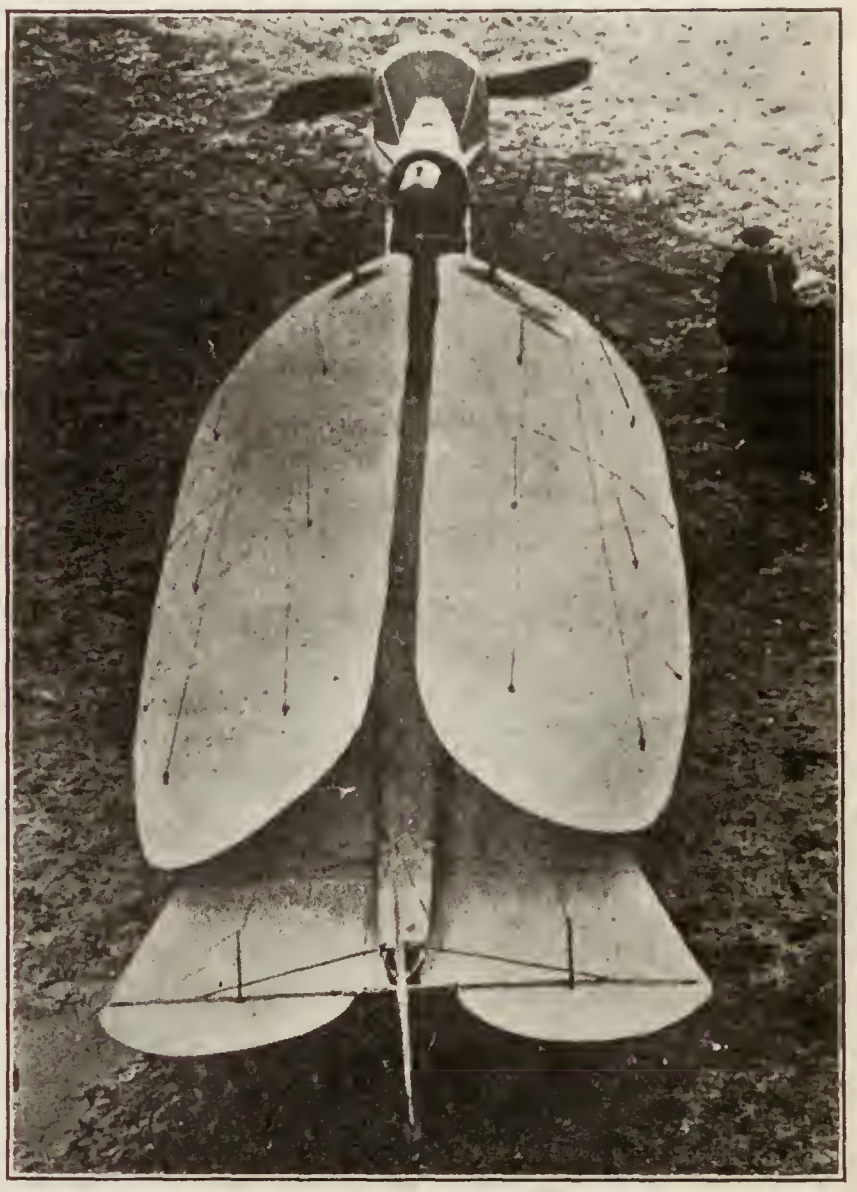


Photo. by Paul Thompson, N. Y.

The De Marcay Monoplane

This new monoplane, which looks like a giant beetle, seems to fill the requirements. Its wings are jointed and can be spread and closed at will.

Please Read This

WE earnestly request all readers of FLY magazine who have built aeroplanes, to turn to page 31 of this issue and fill out the coupon there and mail at once to the Editor, FLY Magazine, Bulletin Building, Philadelphia, Pa.

The importance of securing this information cannot be overestimated, and we trust that those who have not given attention to the coupon in the January issue, will take advantage of this opportunity to aid both themselves and the aeronautic industry as well.

FLY MAGAZINE

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Advertising rates will be furnished on application.

A Mark of Progress

IT is indeed interesting to learn that the Wright Company anticipate equipping their 1912 aeroplane engines with mufflers. The writer knows of no other noise so abominable as that of aeroplane engines, with the exception of that created by the speed devils who drive automobiles through city streets in the dead of night with engines and mufflers wide open. With the progress of the aerial age, it is indeed pleasant to know that such a noise can be silenced if the operator wishes.

Before it was demonstrated that we could fly for a certainty, not much attention was devoted to this thought, but now that aeroplanes can carry passengers, and thus demonstrate that they have energy to spare, the muffler equipment is a natural step in the right direction.

Now that the aeroplane is an established fact such refinements as limousines and muffler-equipped engines are in the line of progress.

Orville Wright in a communication to the writer says, "It seems to me that the chief advantage of a muffler on the motor of an aeroplane, would be in the added pleasure of flying. The noise of the motor is now one of the chief drawbacks of the flying machine for purposes of pure sport."

A silent engine is undoubtedly a relief to the nerves of the operator, and gives the passengers a little more oportunity for conversation if they so desire.

Another advantage that the muffler should give the aeroplane, is the increased value of it for military purposes, and especially night flying.

Regarding the unmuffled motor, Mr. Wright is of the opinion that it could not be heard at 1,000 feet over a city while in open isolated country he states that it is often heard at a height of half a mile or more. With a muffler, he thinks that flying machines could come within a few hundred feet of the ground without being noticed.

The muffler for the aeroplane engine is a guide-post on the way of progress and its introduction in America places us at least on an even basis with Europe, and demonstrates that American brains are alert and active.

The Advance Naval Base Stations

WITH all the effort that has been put forth to establish the aeroplane as a necessary part of the Military, one of the most important uses of the flying machine has been overlooked in the neglect of the Advance Naval Base Station Corps.

Without lengthy discussion it is quite evident that this corps is one of the most vital parts of the Naval branch. Today, without it, a successful naval campaign is almost hopeless.

It is the duty of such corps to establish naval bases during actual warfare. Generally this must be done on captured territory and at places which will be convenient for coaling stations for fleets.

One of the chief objects of the enemy is to prevent the establishment of such bases or surprise and destroy them after they are established.

In the establishment of them, after the fortifications have been reduced and the town or city is at the mercy of the invaders, before the ships can enter the harbor it is necessary to locate and destroy, if possible, all mines and at the same time be constantly on guard for submarines.

Since the establishment of these advance bases is an absolute necessity in times of war, their defense and retention are also just as important.

Less than a year ago, a French aviator flew over the harbor of one of the French cities that was defended by both submarine boats and mines. His report was that at an altitude of several hundred feet he was able to locate with ease both the mines and the submarines.

Has the Government ever considered the immense value of the hydro-aeroplane for the use of the Advance Naval Base Station Corps? If it has not, the time to begin is immediately. The instruction of the officers in this corps for the purpose of locating mine fields and submarines from hydro-aeroplanes should be begun at once. The most careful instruction of these men in such work will more than repay the country for the comparatively small expenditure required to start such work in an experimental way.

Let us consider the subject further, and see if the aeroplane is not a *necessary* part of the equipment of

Advance Naval Base Stations, based on what flying machines have *already* accomplished.

In time of war, without question, the opposing forces would be equipped with aeroplanes. What they can do on land has already been demonstrated in the Italian war in Tripoli. Aeroplanes must be fought with aeroplanes, so that for land defense of a naval base they are necessary.

Then there is the danger from secret surprise attacks of fleets of the enemy. An aeroplane at a comparatively slight altitude can scan the ocean for 100 miles, locate the approach of alien fleets, and even count their number and report hours before their arrival, and thus give the naval base an opportunity for additional defense.

The aeroplane has further been proven of great value for swift messenger service, which might enable the defenders to secure assistance from inland forces before such a fleet could arrive. And in addition to this they would be of equal value in locating the approach of land forces of the enemy.

The establishment of such a base could also be accomplished by a hydro-aeroplane with the minimum of risk, for by this means mine fields and submarines could be easily located and destroyed by bombs. The practice of bomb-dropping for such purposes should be one of the most important uses of the aeroplanes in times of peace and regardless of what has been said as to the inefficiency of such work, it is a matter of fact that practice will overcome, to a great degree, the present difficulties.

A hydro-aeroplane for such a purpose should be of the passenger-carrying type, and the man officer detailed to fly with the operator should practice bomb-dropping until he has mastered it as far as possible. Work of this character is quite different from the occasional "bomb-dropping" indulged in at aviation meets, and the high degree of inefficiency is no doubt due to lack of practice.

A final word in regard to the ability of sharpshooters to hit aeroplanes.

In the spring of 1911 there was much newspaper talk about the wonderful work done by men on board a moving ship, shooting at trailing kites as a target. The writer has been told by one who has personal knowledge of a portion of this work, that *sharpshooters* fired 1000 rounds at these target kites, and when they were pulled down there were just eight hits. One of the men who actually was engaged in this practice asserted that he fired 100 rounds without a hit. This man was, incidentally, a crack shot. It is not disputed that there were better records made, but at the same time, it would seem that this serves to illustrate the fallacy of the belief that a rifle is deadly to an aeroplane.

In the face of such convincing work as has been accomplished for governments by aeroplanes and hydro-aeroplanes in 1912, it does not seem possible that this Government will longer delay in granting hydro-aeroplanes to the Advance Naval Base Station Corps.

France and the Fourth Arm

THE importance of aerial flights controlled by the Government, is emphasized by the reported formation of an aerial regiment by France. Last summer the French aeroplane fleet was divided into units, each unit having six aeroplanes together with movable sheds, workshops and spare parts.

The Minister of War, by a decree has concentrated these units into a single organization which will constitute the "fourth arm" to national defense.

The Chamber of Deputies is to be asked for a credit of $10,000,000 to carry on this work. The budget includes 1,000 aeroplanes to cost $4,000,000, twenty new aerodromes with all equipments to cost $4,000,000, and the remaining $2,000,000 to be spent for the purchase of machines, tools, and for upkeep.

It is now recognized that several types of aeroplanes are necessary for the varied work required by the Military, and the French Minister of War has seen the necessity of organizing what is bound to become the most potent factor in future warfare.

The amount is none too much to carry on the work and the results will undoubtedly justify the expenditure. The carrying on of the "fourth arm" on such a scale will mean that France will have an experienced regiment of aviators, mechanics and officers when such work is in its infancy in other countries.

Will the other nations sit supinely by and build battleships and neglect this greatest necessity for national defense? $200,000 of aeroplanes could make junk of a $10,000,000 battleship in a very short time.

The Letter Box

"Better and Better"

NASHVILLE, TENN., January 6, 1912.

AERO PUBLISHING CO.,
Bulletin Building,
Philadelphia, Pa.

Gentlemen:—

I take three aeronautical magazines and, although the others cost more, I like FLY best, and I heartily agree with you when you say it is growing better and better.

Yours truly,
E. B., JR.

"In Touch With All"

WAXAHACHIE, TEXAS, January 1, 1912.

AERO PUBLISHING CO.,
Bulletin Building,
Philadelphia, Pa.

Gentlemen:—

Enclosed you will find my renewal subscription to FLY, I am very much interested in aviation, and FLY keeps me in touch with all that is doing in that line. Therefore your publication is a very valuable one.

Wishing you all success, I am

Yours respectfully,
J. W. F.

The Never-ending Chase for the Altitude Record

Height.	Aviator.	Place.	Date.	Machine.
360 feet	Wright, W.	Le Mans, France	December 18, 1908	Wright (B)
394 "	Paulhan, L.	Auvours, France	July 18, 1909	Voisin (B)
1,558 "	Latham, H.	Chalons, France	December 2, 1909	Antoinette (M)
3,445 "	Latham, H.	Betheny Plains, France	January 7, 1910	Antoinette (M)
4,165 "	Paulhan, L.	Los Angeles, U. S.	January 12, 1910	Farman (B)
4,939 "	Brookins, W.	Indianapolis, U. S.	June 17, 1910	Wright (B)
6,175 '	Brookins, W.	Atlantic City, U. S.	July 9, 1910	Wright (B)
6,600 "	Drexel, J. A.	Lanark, Scotland	August 11, 1910	Bleriot (M)
8,261 "	Morane, L.	Havre, France	September 3, 1910	Bleriot (M)
8,406 "	Chavez, G.	Issy, France	September 8, 1910	Bleriot (M)
9,174 "	Wynmalen, H.	Mourmelon, France	October 1, 1910	Farman (B)
9,714 "	Johnstone, R.	Belmont Park, U. S.	October 31, 1910	Wright (B)
#9,897 "	Drexel, J. A.	Philadelphia, U. S.	November 23, 1910	Bleriot (M)
10,168 "	Legagneux, G.	Pau, France	December 9, 1910	Bleriot (M)
*11,474 "	Hoxsey, A.	Los Angeles, U. S.	December 26, 1910	Wright (B)
10,761 "	Loridan, M.	Mourmelon, France	July 8, 1911	Farman (B)
11,150 "	Felix, Capt.	Etampes, France	August 5, 1911	Bleriot (M)
11,642 "	Beachey, L.	Chicago, U. S.	August 25, 1911	Curtiss (B)
12,792 "	Garros, R.	Paramc, France	September 4, 1911	Bleriot (M)

#This was not an official world-record for altitude.

*Hoxsey's barograph was uncalibrated, and it was so injured in the fatal fall at Los Angeles that it can never be made official.

SOME time ago the noted aviator, Roland Garros established a new record for aeroplanes by reaching an altitude of more than 13,000 feet. The Committee of the Aero Club of France, however, allowed it only as a performance of 12,792 feet, a truly remarkable achievement at that for an aeroplane; and through his flight Garros has broken Lincoln Beachy's record of 11,642 feet.

If these records are of the value and importance with which the French seem to regard them, we would fain have them remain where they now stand. We are now in the possession of the fact that it is possible to attain an altitude of 10,000 feet in an aeroplane and with this we ought to be satisfied; for it seems to be the concensus of opinion that altitude records are absolutely void of any value toward the development of the aeroplane. There are many far more important problems to solve and it did look for a while as if the great and only object of the present day aviators was to perform sensational flights and break world records.

We may well wonder that no one has struck the crazy idea of getting up a prize for a flight over Mont Blanc, just to supply the world with a new sensation. Quite enough sins have been committed in this direction. Far from us the wish to have to lament the loss of a second Chavez!

Yet there are in France aviators who propose to try and lower the present world-record for height.

It is on the grounds at Compeigne that the new trial is to be made, and it is there that Legagneux, the man who can do anything, has for sometime been attracting attention to himself through sensational flights. He intends taking with him on this flight a tank of oxygen which will enable him to travel to such extraordinary heights as have hitherto been reached only by free balloons.

It is interesting to follow up the development of altitude flights up to the present date. It will be observed that while the world-record for altitude changed holders ten times in 1910, showing an increase of more than 6500 feet, there have been only four changes in 1911 for an aggregate of little more than 2600 feet.

The first man to show the world that it was possible with aeroplanes to reach altitudes until then undreamt-of, was the well-known pilot of the Antoinette monoplane, Hubert Latham. On December 2, 1909, Latham established an altitude record of 1,558 feet which he himself raised shortly afterwards, on January 7, 1910, to 3,445 feet. Latham took forty minutes to reach that height and come down again, whereas Loridan, who, the other day, placed the world-record mark at 10,761 feet, took only one hour and twenty-three minutes for the ascent and twelve minutes for the descent.

To those who congratulated Latham on his magnificent performance of that occasion, he said, "I accomplish this flight to the honor of the ill-fated Delagrange, just to show the world that we know no fear and that there is no danger in soaring to such a height as that." Delagrange had been killed three days previous at Bordeaux, France.

Latham's performance created a prodigious excite-

ment at the time,—he was the pioneer 1,000 metre aviator. No sooner did the news of it reach America, than Louis Paulhan, who had previously made a name for himself flying the Farman biplane, set himself to beat the record and, five days later, on January 12, 1910, he rose to a height of 4,165 feet. The difference was not great, but Latham's mark was beaten.



Roland Garros

There was a continued struggle abroad from that time on, but the next record was made by Walter Brookins in a Wright biplane at Indianapolis, on June 17, 1910, when he rose to a height of 4,939 feet. Brookins then set about to outdo his own record and succeeded in doing this on July 9, 1910, at Atlantic City, N. J., where he climbed to the then marvelous height of 6,175 feet.

And now began a general altitude-record chase. On August 11, at Lanark, Scotland, J. Armstrong Drexel moved the mark up to 6,600 feet. Then Leon Morane, flying at Havre, France, on September 3, climbed to an altitude of 8,261 feet. At Issy-les-Moulineaux, France, on September 8, the ill-fated Peruvian, George Chavez, hung up a record officially determined as 8,406 feet. Fifteen days later he flew from Brig, Switzerland, across the Alps to Domo d'Ossola, Italy, in forty minutes, then when only thirty feet from the ground he fell, receiving injuries that caused his death five days later. Morane was again the holder of the world-record for altitude.

However, on the very day that all Italy, France and Peru were paying tribute to the memory of Chavez, Henry Wnymalen, on October 1, at Mourmelon, France, attained an altitude of 9,174 feet.

The scene of the altitude struggle was then again transferred to America, where J. Armstrong Drexel, Arch Hoxsey and Ralph Johnstone daily strove at the International Aviation meet held at Belmont Park, Long Island, during the latter part of October to establish a new record. On the final day of the meet Ralph Johnstone climbed in a Wright biplane to a height officially placed at 9,714 feet. Drexel had previously broken the American record but a ruling of the Federation Aeronautique Internationale made it necessary for the standing record to be exceeded by 100 metres or 328 feet in order for the mark to become an official one.

At Philadelphia, Pa., on November 23, J. Armstrong Drexel again attempted to establish a new record, but after considerable excitement and the final submission of the barograph to the United States Weather-Bureau experts, at Washington, D. C., a final reading of 9,897 feet was returned.

However, before the reading of the Drexel barograph was finally adjusted George Legagneux, flying at Pau, France, on December 9, shot his Bleriot monoplane up to a height of 10,499 feet, but which was officially adjusted to 10,168 feet. This was a new world-record for altitude.

Again an American sought to establish a new mark and on December 26, Arch Hoxsey, flying a Wright biplane, made a new world-record of 11,474 feet. The barograph, however, was uncalibrated and before it could be sent to experts for official adjustment, Hoxsey fell, on December 31, at Los Angeles, to his death and in the wreckage was the barograph, and thus was destroyed forever his opportunity of being credited with an official world-record for altitude. Hoxsey's flying at the Los Angeles aviation meet was unique in the history of aeronautics. Three times within five days he rose to a height of more than 10,000 feet and in one flight he attained what might have been a world-record.

Legagneux remained the holder of the altitude record for some time. There was a lull in altitude-hunting, but on the 9th of July, 1911, Marcel Loridan, flying a Farman biplane at Mourmelon, France, bettered the performance of Legagneux by rising to a height of 10,761 feet.

In its turn Loridan's record was broken on August 5, by a military aviator, Captain Felix, director of the Military Aviation School, at Etampes, France, who ascended to a height of 11,150 feet in a Bleriot monoplane.

Nor did this record hold first rank long. On August 25, at the Chicago Aviation meet, Lincoln Beachey, dirigible operator and dare-devil aviator, gave prestige to the Curtiss biplane by securing the title of world's champion altitude flier with a height of 11,642 feet.

But France was ready to find him a new rival and Roland Garros, operator of the Bleriot monoplane, on September 4, at Parame, France, deprived Beachey of his laurels by rising to a height officially determined, according to reports, of 12,792 feet.

This is the latest exploit and the last of the altitude records has yet to be accomplished.

Atwood Has Accident

IN view of the many and widely differing stories that have been printed regarding the accident which occurred to Harry N. Atwood while flying at Lynn, Mass., on January 1, we are glad to be able to print an accurate account of it as given to FLY in the following letter from Philip Ward Page, the well-known aviator of the Burgess Company and Curtis.

Aero Publishing Company,
Bulletin Building, Philadelphia,
Gentlemen:

In view of the widely divergent newspaper accounts of the accident to Harry N. Atwood in a Burgess hydro-aeroplane on Jan. 1, I take this occasion of explaining the accident as it was described to us by Mr. Atwood:

At the time of the flight there was a puffy 18-mile wind, and consequently rough water in Lynn harbor, where the flight was started. Mr. Atwood had not put in place the rubber magneto cover with which we had provided him as a part of the regular equipment of the machine, so that during the preliminary run along the water the magneto took the spray of a wave. The motor did not stop, however, until Mr. Atwood had flown for about a half mile, close to the surface of the water. Then the motor stopped, and the aviator made a successful landing.

Drifting tail first before the wind at a considerable speed, the rear of the hydroplanes were forced under water. Thus the aeroplane was forced over backwards, the tail striking on a sand bar. The aviator escaped with only the wetting of his feet, since he climbed upon the bottom of the upper surface as the hydro capsized. The hydro-planes prevented the machine from sinking.

The damage consisted of one broken main girder, the fracture of most of the ribs at the trailing edge, and broken tail spars. This damage has since been repaired at our factory.

Sincerely yours,
PHILLIPS WARD PAGE.

England Preparing for Race

IT has been announced by the Royal Aero Club of the United Kingdom that aviators wishing to compete for the Coupe Internationale d'Aviation in 1912, must notify the club by February 15. A committee of the Royal Aero Club will select three competitors to represent the British Empire.

It has been decided by the Federation Aeronautique Internationale that the course shall be a closed circuit with a minimum of five kilometers (3.1 miles), the total distance to be covered being 200 kilometers (124.27 miles).

Each club affiliated with the Federation Aeronautique Internationale has the right to challenge the holder, the Aero Club of America, and such challenge must be sent in not later than March 1.

New American Record

GEORGE W. BEATTY, in a Wright biplane, set up an American record for passenger carrying at the Nassau Boulevard aerodrome on January 21, when he took three pasengers aloft. Beatty ascended to a height of 500 feet and made four circuits of the two mile course. The flight was made spectacular by a series of fancy turns. The passengers were Dr. A. G. Beldon, of Terre Haute, Ind.; Herbert Pratt and Jack Findley, of Garden City. One of the three sat in the seat provided for a passenger and the two others on the forward wing spar.

About a year ago Charles F. Willard tried to carry three passengers at the Hempstead Plain aviation field, but succeeded only in making a jump or two. In Europe Sommer has carried thirteen pasengers at once, several of whom were children. The total weight was 1,436 pounds.

Coffyn Has Self-starter

FRANK COFFYN, formerly a Wright aviator, has announced that he has perfected a motor starting device for his hydroplane so that only one man, the pilot, is needed.

Coffyn says he made eight successful trips over Lake St. Clair using this new attachment, and he is satisfied with its efficiency. The engine may be stopped and restarted from the seat while the machine is on water or land.

Mr. Coffyn used the biplane of Russell A. Alger, of Detroit, for his experiments. The apparatus has been submitted to the Wright Brothers, and it is probable they may adopt it for use in their machines. Mr. Coffyn has been invited to explain his invention at the dinner of the Aero Club of America on January 27. Mr. Coffyn said the device is attached to the flywheel, which is made with teeth to fit into another gear operated from a shaft. This shaft runs forward to a position alongside the pilot's seat and at the extreme front end of the shaft is the handle of the starter. The contrivance weighs nine pounds.

Foreign Aviators Want Prize Money

GEORGE F. CAMPBELL-WOOD, who was a delegate from the Aero Club of America at the recent meeting in Rome of the Federation Aeronautique Internationale, upon his recent arrival in London, England, expressed the opinion that there would be difficulties in securing foreign aviators to take part in the Gordon-Bennett race to be held in America, unless they raise considerable prize-money.

He stated that he still regards France as leading the world in aviation but expressed the belief that England is not so backward as might be supposed.

How to Build a Model Nieuport Monoplane

Miniature Speed Marvel a Capable Flyer

By Philip McCutchen

THE simplicity of design of this French speed marvel readily adapts itself to the requirements of the model aeroplane constructor who is looking for a model that is a capable flyer and very realistic in appearance.

I take it for granted that you have had sufficient experience in model work to undertake the construction of a model that requires a little more metal work than the average machine.

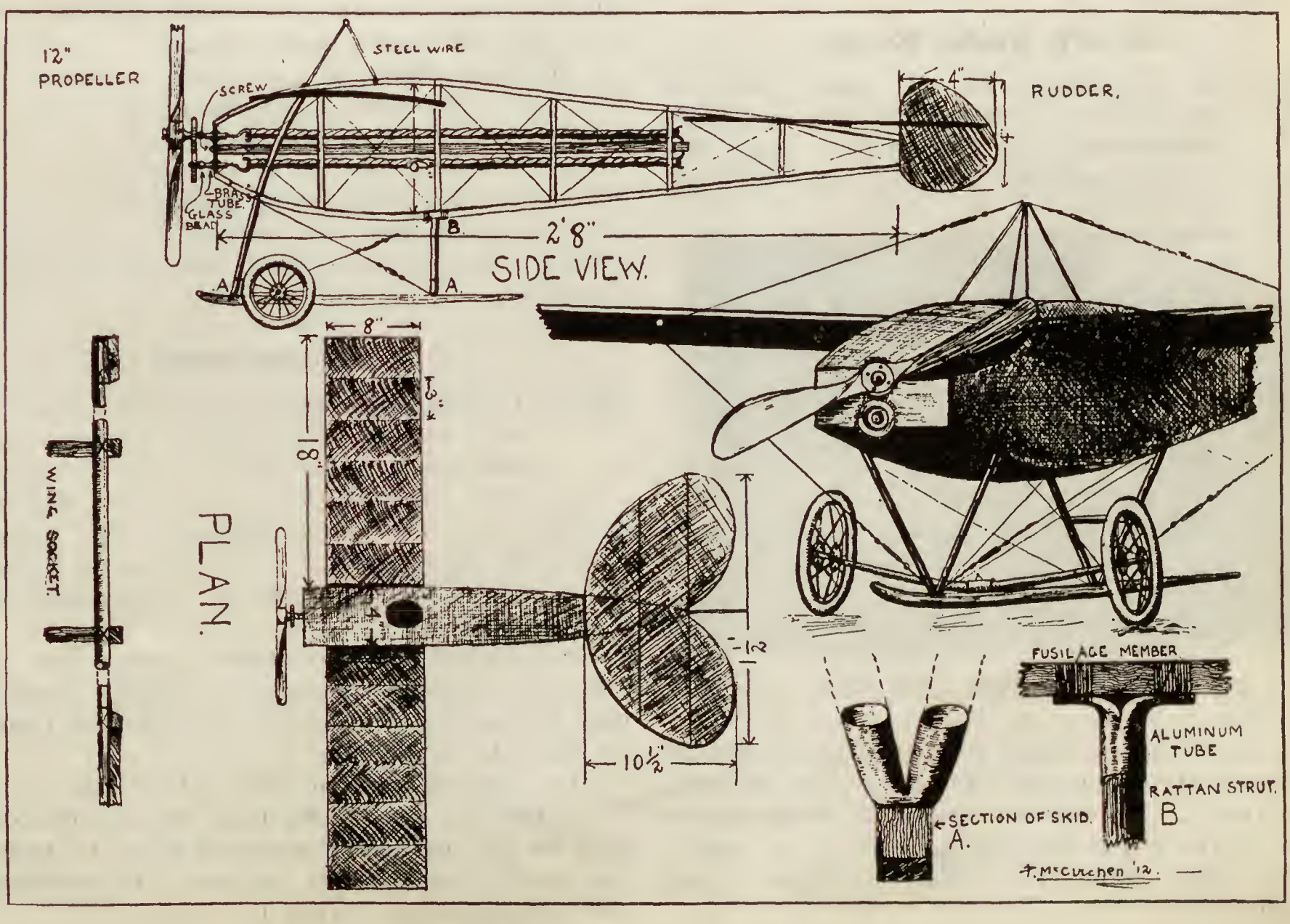
The wings of this model are made in the usual manner with whitewood and strip bamboo. I will not dwell on the details as this process has been carefully described in previous numbers of "Fly." I would suggest that you secure these back numbers if you do not possess them as they will prove invaluable to you in your work. The dimensions of the main planes are 18"x8". These front surfaces are almost flat, the curve being hardly perceptible. In attaching them to the central frame care should be taken that the chord is parallel with the motor base.

The tail plane is made entirely of strip bamboo framing and is very easy to make. Silk or muslin may be used as a covering as both front and rear planes are double surfaced.

The rudder is made of a piece of 1/32" spruce. It is not really necessary to cover it, but for the sake of appearance it is a good plan to cover it on both sides.

The fuselage is made of 3/16" square clear spruce. The wood is shaped to the proper curve over a Bunsen burner and the uprights and cross-pieces are nailed on with fine wire nails. When the entire frame is finished it should be cross wired to prevent warping.

The landing chassis is made of four ¼" diameter rattan struts, one ⅜"x¼" spruce skid, one 1/16" steel axle reinforced with a strip of rattan, and two pneumatic-tired aeroplane wheels. The rattan struts are joined to the fuselage by short aluminum sockets. These sockets are made of one inch lengths of aluminum tubing cut half way down on each side and the separated portions flattened out. The resulting strut socket is then lashed to the lower members of the



main frame and the rattan struts are inserted in the tubular portion of the joint. The struts are joined to the skid by means of a "V" shaped piece of tubing nailed to the skid. This combination socket is easily made out of a straight piece of tubing.

The chassis should be wired with steel wire to prevent the struts from slipping out of the sockets. The axle is attached to the skid by heavy thread wrappings coated with glue.

The spruce motor base is 20 inches long and 3/8" square. It is directly attached to the tin strip that forms the front of the fuselage. In the rear it is held in position by a loop of stiff steel wire.

In order to secure perfect balance the motor base had to be made rather short, and in order to increase the power a double motor is fitted. As may be clearly see in the accompanying drawing, two 5/8" diameter spur gears running in short lengths of brass tubing are used. The brass tubes are soldered to the front tin strip and the 1/16" steel shafts, bearings, and gears are fitted.

If this motor is carefully put together it is impossible for the gears to slip in any way. In attaching the shafts to the gear wheels care should be taken that the joint is secure, as most of the strain is concentrated at this point.

A New Model Record

A NEW American record for model flights in America, was established in Fairmount Park, Philadelphia, Pa., on December 26, when Percy Pierce flew his own model a distance of 1,814½ feet.



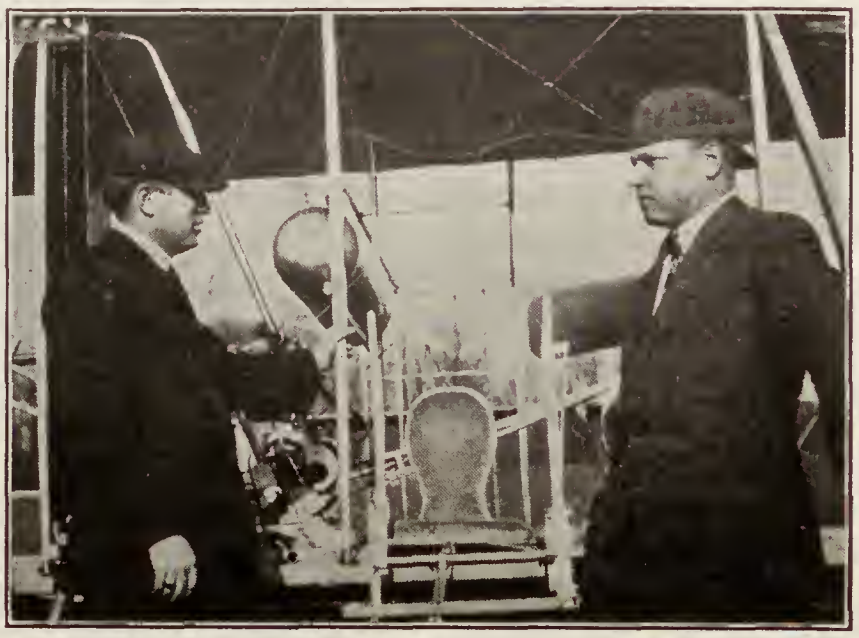
Percy Pierce, Champion Model Flyer

The flight was made in competition for the St. Nicholas Model Trophy offered by "St. Nicholas Magazine." The officials were F. W. Fountain and Mr. Kestler of the Philadelphia Y. M. C. A., and G. Albert Wolf, secretary of the Philadelphia Trade School.

New Aviator at Wickatunk

DOWN at Wickatunk, N. J., William B. Manna, a well-known automobile driver, is learning to operate a Wright biplane under the instruction of O. G. Simmons, the well-known aviator.

Manna has had four flights as a passenger, taking photographs with a kodak, and in addition has had five lessons in operating the machine.



William Manna (left) with Aviator Simmons

Simmons expresses the opinion that he will be able to finish him in very short time if the weather will stay good. He states that Manna has caught on nicely and will make a good aviator.

His lesson flights are as follows:

December 7,— 5 minutes
December 8,—14 minutes
December 8,—15 minutes
December 9,—17 minutes
December 9,—12 minutes

His total time in the air for five lessons has been 63 minutes.

An Announcement

WE are pleased to advise our readers that the March issue of FLY Magazine will contain an interesting and somewhat technical article concerning "The Action of the Flapping Wing and Application of Theory to Ornithopters," by Herbert Chatley, B. Sc., A. M. I. C. E. I., Professor of Civil Engineering, Tang Shan Imperial Engineering College.

It is interesting to note that so prominent an authority on aeronautics and one who holds a foremost place in the rank of aeronautic engineers still retains a belief in the ornithopter.

In a letter to the Editor, Mr. Chatley writes:

"After *two years* I still think the principles outlined are true and can be applied to design by anyone who has the time, patience and money to experiment with mechanisms for copying the motions."

Questions and Answers

A Department for All Aero Students

Conducted by A. Roe Bugg

Dear Sir:

Which is the most practical, the lifting or non-lifting tail?

Which is the easiest to control?

In a monoplone with a non-lifting tail should the weight be distributed irrespective of the tail?

P. W. C.

The non-lifting tail is the best, as it will have but the one function to perform. It is very hard to get, however, and does not remain the same as in a two-man machine. The Wright machine is so designed that two men of an average weight of 150 pounds will balance the machine and give a non-lifting tail; on the other hand, if the aviator flied alone he is compelled to put a slight lift on the tail to keep balance. This does not trouble the operator, as the aeroplane will handle just as easily with one or two in the machine.

In a one-man monoplane the machine, especially if high powered, should have a non-lifting tail. It not only handles easier, but due to the non-resistance of the tail it will make better speed.

The weight of the tail must be taken into consideration as well as the resistance.

Dear Sir:

Would like to know the address of five or six of the more prominent aero clubs of this country. If you can give me this information it will greatly oblige.

D. M.

Aero Club of America, 297 Madison ave., New York City; Aero Club of Connecticut, 2131 Main street, Bridgeport, Conn.; Harvard Aeronautical Society, 164 Washington street, Boston, Mass.; Aeronautical Society, 250 W. 54th street, New York City; Aero Club of Pennsylvania, Bellevue-Stratford Hotel, Philadelphia, Pa.; Aero Club of St. Louis, 19 South Broadway, St. Louis, Mo.; Aero Club of California, 107 N. Spring street, Los Angeles, Cal.

Dear Sir:

Will you please inform me if there is an aeroplane company that takes young men to train for aviators, provided they sign a contract to serve as a company aviator after finishing?

J. M. H., Jr.

I know of no company that will undertake the proposition that you state. However if you will watch the advertising columns of FLY you will learn of a number of companies that will teach a young man for a comparatively small sum. After he becomes an aviator they sometimes secure him to fly for them, or rent him a machine on a percentage basis. If he is successful he can in time earn enough to buy a machine outright.

Hyde Park, Mass.

Dear Sir:

Kindly advise me as to how much money it would cost to construct a biplane glider carrying a supporting surface of 68 feet?

J. G.

Such a glider as you mention could be constructed for about $15 if economy is practised.

ATTENTION OF C. H. C., OAKLAND, CALIFORNIA

I am glad to print herewith the letter of C. C. Hines, of Washington, D. C. The writer was under the impression that the value of the Wright warping wing claim is due to the fact that the patent was filed more than two years prior to that of Professor Montgomery.

I trust that the letter of Mr. Hines which follows will set the matter right with those who have drawn other inferences from the answer printed for the benefit of C. H. C., in this column in the January issue.

A. Roe Bugg.

Washington, D. C., Jan. 9, 1912.

Editor FLY:—

In the "Questions and Answers Department" of your issue of January, 1912, you state inferentially that the Wright Brothers' patent emphatically covers "the principle of maintaining stability by increasing or decreasing the angle of incidence of the planes by warping them."

This statement is incorrect. The broadest claim (claim 7) of the Wright patent covers the action of warping opposite surfaces to different angles of incidence in conjunction with a prescribed adjustment of the vertical rudder. The question to be determined by the Courts is whether or not the patentees are restricted to their particular mode and means disclosed for performing the function set forth.

Your statement would be more nearly correct if applied to the patent of the late Professor Montgomery, which broadly covers the idea of flexing or warping a curved aerofoil to vary its curvature and, necessarily, its angle of incidence. The specification and claims of this patent also appear in Lougheed's "Vehicles of the Air." I take the liberty of rebutting your statement in order that your readers may be correctly informed.

Yours very truly,

C. C. Hines.

New Books for the Aeronautical Library

Additional Volumes on the Science of Aviation

(*See* FLY MAGAZINE *Book Department in the advertising section for the latest and best books on aeronautics.*)

Stability in Aviation, by G. H. Bryan, Sc. D., F. R. S., is an introduction to dynamical stability as applied to the motion of aeroplanes.

"Stability in Aviation," offers to the serious student of aeronautic one of the most complete technical discussions of stability ever placed at the disposal of men, and without doubt it is also as correct as nature permits anyone to approach perfection.

In glancing through the pages of the book, it is astonishing to find how thorough the work has been planned and carried on. The theories of such men as Bryan-Williams, Captain Ferber, Lanchester, Brillouin, Reissner, Crocco, Soreau and Lecornu have all been investigated in the preparation of this work, and the results and comparisons are quite fully discussed in the pages of the volume.

It is a matter of truth that very few persons have had either the time or the inclination to follow out the questions involved in aeroplane stability; partly because of the lack of elemental knowledge and partly because of the lack of material for research.

The author puts the matters clearly when in the introduction he says, "The great difficulty in writing this book has been the newness of the subject, and the fact that the further that one advances in it the greater appear the possibilities of still further explorations."

The many months of labor represented by the formulae, and the high repute of the men who assisted in the checking of them, go far toward establishing the work of Bryan as entitled to first rank among the several other manuscripts devoted exclusively to the subject.

Theory and practice go hand in hand and the designers and builders who are struggling to attain aeroplane stability will do well to spend a few days with the formulae and results as obtained by Bryan.

Aviation and Aerostation, by Colonel H. Hoernes with a preface by J. H. Ledeboer, B. A.

This book from the pen of England's most faithful defender of the dirigible balloon, is really an exposition of the balloon, dirigble, and the aeroplane. Fifty pages are devoted to the discussion of dirigibles, and these chapters are without doubt among the most valuable in the annals of aeronautics. The dirigible balloon from its very beginning is discussed in a clear and for the most part non-technical style, which permits of easy understanding of the arguments used. Those interested in the future of the dirigible will do well to read these chapters.

At considerable less length, the spherical balloon, the aeroplane, the ornithopter and helicopter are taken up. In concluding the chapter regarding the use of the ornithopter, Colonel Hoernes voices the popular belief in aeronautic circles at least, that we will not fly with flapping wings.

In dealing with the question of helicopters Colonel Hoernes on the other hand states that "Practical experiments no less than theoretical considerations prove the possibility of building successful helicopters."

A convenient appendix contains a list of the aero clubs in the United Kingdom, a list of the British Flying-Grounds, and the location in England of dirigible sheds.

Aviation and Universal Peace, by Henry Preise, refered to in the subtitle as, "A Timely Dissertation, Scientific-Poetic."

When the connecting link is to be found in the book of the title "Aviation and Universal Peace," is rather hard to discover. One thing can be said in truth regarding the chapters on aviation; they are quite the most bizarre ever found in any modern book on aeronautics.

There is one chapter that deals more or less with Universal Peace interwoven throughout with a religion harrangue that after all is simply a combination of words. If there is anywhere in the book an example of unity or contiguity the writer apologizes for overlooking it.

Incidentally there is some poetry in it which adds to "the gayety of nations."

The first chapter begins with the statement that "without here going into the history of aviation we can state that the French engineer Giffard was the first person who did anything along this line."

Then follows a heterogeneous discussion and a paragraph introducing, "warbling skylarks," "seraph music," "nightingales" and "superb cresendoes." This last sentence "Mellow and full of music, balmy and perfume scented was the air, and mostly clear the skies; nature had donned her bridal garb, and then—O!" introduces nine stanzas that form some of the poetic part of this dissertation. The first stanza reads:

"How I did wish like those birds to fly,
Alike 'em be free, sing merry, soar high,
But to my body my wings they were tied,
And Fortuna to give a lift was only in sight."

Everyone interested in aeronautics will do well to read this book and find out what they do not know about aeronautics. It's a gem!

TRADE TOPICS



W. Starling Burgess Flying Over Marblehead Bay

The Burgess Company Schools

On December 23d, the Burgess Company and Curtis delivered a complete hydro-aeroplane to the Clayton and Craig schools, with Harry N. Atwood, as operator. After a brief flight around the Harbor, Mr. Atwood, with passenger, flew at once to Lynn, landing at the Point of Pines after encircling the town two or three times.

A few days after he established the American Hydroplane Endurance by flying from Lynn to Providence, R. I., being in the air two hours and forty-three minutes. During November and December the Burgess Hydro-aeroplane has been in the air somewhat over thirty hours, making about 120 flights, and taking up 50 different pupils, all of whom are enthusiastic in the development of flying, as a sport, over the water.

The company has a school established in Los Angeles, equipped with aeroplanes and hydro-aeroplanes under the charge of Howard W. Gill, which will be open during February, March, and probably April.

The school at Palm Beach is in charge of W. Starling Burgess and Phillips W. Page, licensed aviators, and will be opened January 25. A very fine location just south of the Breakers, on Lake Worth, has been chosen for its headquarters.

Mr. Patrick Grant, 2d, center of the all-America football team in 1908, has enrolled himself as the first pupil at that school. Flying will continue intermittently in Marblehead Harbor, depending entirely upon local weather conditions.

That Frontier Engine

On December 21, George Beatty, the famous aviator, made flights in his Wright biplane, at Buffalo, N. Y., to test the product of the Frontier Iron Works, who are now placing on the market the eight-cylinder Frontier aerial motor.

Attempts were made to keep these flights secret, but astonished spectators in the vicinity of the grounds soon flocked to the place—men and women alike—without hats or coats. The lucky ones were the first in Buffalo to see a passenger carrying aeroplane in full flight.

Promptly at 1 o'clock in the afternoon, the spotless new model Wright biplane was wheeled out on the grounds. Beatty went into no procrastinating preliminaries, but hopped into the roaring machine. Like a gull, he soared from the ground and circled about the meadows. The pure white wings were dazzling in the sunlight, almost blinding the small group of spectators.

From a height of several hundred feet, Beatty cut off the motor and glided within fifteen feet of the earth. With a roar, the engine started again, and up went the mammoth bird. Apparently not satisfied with this test, the airman speeded up and slowed down several times, and then darted to earth. Before the biplane had come to a complete stop, Beatty again started the motor and swooped upward. After a few minutes' flight, he descended. Almost overcome with enthusiasm, his friends swarmed about the clever record-holder, and begged him to take them up. "Hop in," cried Beatty to Walter Semon, the inventor of the engine.

For ten minutes the biplane soared at ease high above the Country club grounds and the poorhouse, and with a final sweep over the Kensington race-track, came back to earth but a few feet from the starting point. William Gomez was the next person taken for a taxi-trip in the clouds. This flight lasted ten minutes.

Andrew Drew Makes New Contract

Andrew Drew, licensed pilot No. 50, has just closed a contract to take charge of the winter classes of the American Aeroplane Manufacturing Company and School of Aviation, who will commence with the classes starting January 8th. Mr. Drew, with the records he has made within the past year and with his knowledge of sane flying, should be successful to be a big addition to this school.

The American School of Aviation has completed

another new hanger at their aviation field at West Pullman, Illinois, and also expect to start another one within a couple of weeks. These hangers are built of the lastest construction, each capable of housing two machines.

The School is also offering the use of two styles of motors to experimenters of new type of machines. This is being done as a great many amateur builders have not the capital to secure motors and also to those who do not wish to purchase motors until they are sure their aeroplane is a success.

The officers of the American Aeroplane Manufacturing Company and School of Aviation think results from the new type of machines and the progress made should be very gratifying.

The American School of Aviation

Rider Bros., Newark, Ohio, have just received an American biplane, equipped with 60-H. P. motor from the American Aeroplane Manufacturing Company and School of Aviation, and expect to be ready within a few days to go South on an exhibition tour.

The Tantarnapol Exhibition Company, Chicago, expects to leave shortly for the South to make exhibitions throughout the Southern States, Mexico and South America. They have purchased American biplanes, equipped with Kirkham sixes motors, from the American Aeroplane Manufacturing Company and School of Aviation, the American Aeroplane Company booking them upon this trip. The aviators and crews to be graduate pupils from the above school.

The Hopkins Aviation Company

The Lindsey Hopkins Aviation Company, although a newcomer to the ranks of the exhibition aviation companies, is well organized, and actively engaged in securing and filling dates. Its headquarters are in Atlanta, and special attention is being given at present to Southern bookings.

The head of the company is Lindsey Hopkins, President of the Overland Southern Motor Car Company, and one of the most prominent and successful automobile men in the South. He has been interested for some time in Aviation, and the present organization is only a small beginning of wider and greater activities that this energetic and successful young business man has planned out for the future. This will include not only his present entrance into the field of exhibition flying, but the manufacture and sale of machines, parts and accessories.

The Curtiss biplane in which Andrews met with his accident, was purchased by Mr. Hopkins from the Curtiss Aeroplane Company last summer. It was flown by Lieut. T. G. Ellyson. U. S. A., at the Nassau Boulevard meet.

Andrews, last November, in company with Lincoln Beachey and C. F. Witmer, the latter two fliers being furnished by the Curtiss Company, flew at a three-day meet at Atlanta, promoted and given by Lindsey Hopkins. This meet was one of the largest and most complete meets ever given in the South. The U. S. mail-carrying and military program features given there proved most effective, and were undoubtedly the most elaborate events of their kind ever attempted in this country. They were planned and carried out by Mr. Hopkins on a most pretentious scale, an achievement which has won for him much praise throughout the Southland.

New Record With Passengers

FLYING at Rheims, France, on January 22d, the Aviator Prevot, carrying two passengers in a monoplane, ascended to an altitude of 7,150 feet. This is a world-record height for an aviator with two passengers.

The former record was held by Verrept, who, on January 20th, flying with two passengers at Senlis, France, ascended to an altitude of 3,527 feet.

Milling's Record Beaten

A WORLD-RECORD for duration by an aviator with two passengers was made on January 22d by G. L. Ulick, flying at Johannisthal, Germany, in a Harlan monoplane. His time in the air was 2 hours 2 minutes and 45 seconds, breaking the record made at Nassau Boulevard, Long Island, by Lieut. Milling, October, 1911, by little more than 6 minutes.

Dubonnet Makes New Record

Continued from page 10

so terrible was the snowstorm outside.

"We both slept that night on a table and we suffered greatly from the cold as we had not dressed to withstand such weather. Furthermore, we had nothing to eat, for all our provisions, champagne, beef, tea, etc., were frozen. As we had not eaten while up in the air, we remained three full days without food. The next morning, at 3 o'clock, we got the Jew's sledge ready with two diminutive long-haired horses, known locally as "koniak," and set out for the nearest railway station, which was Monastiritsche. The journey was a very long one, for it lasted eight hours, and we both felt so cold that for some time we ran behind the sledge to warm ourselves.

"At Monastiritsche, we at last met someone who spoke French; that was Francois de Jaroszynski, a chamberlain of the Russian Emperor and owner of a large estate in the district. We made him sign our maps, which he did together with Stanislas de Bodisco, a lieutenant of the Fifth (Lithuanian) Lancers.

"We have brought back these maps with us as proof of our landing point. Our logbook had been despatched to the Aéro-Club de France from Monastiritsche, and it must have arrived by now. The only equipment of the balloon we have brought back are the two baskets of the car, with the instruments and the flag. The rest of the balloon is still 11 versts east of Sokolowska, at the spot where we landed. We fear it is entirely lost now! We have made arrangements, however, for the silk envelope to be sent back to Paris if it still can be saved. Our balloon, the Condor III, was the one we used in America, and it was only its second ascent.

"We had a great many difficulties in Warsaw on account of our passports, not mentioning, of course, our entry into Russia, and we were searched from head to foot by officials. We owe much to the courtesy of M. de Jaroszynski, who helped us greatly in this matter. We are very pleased at the result of this voyage, and the news that we had broken the record was to us sufficient reward for the privations we had to endure."

Women In Aviation

ONE of the interesting features of aviation during the past year has been the development of women aviators.

In four countries women have been granted pilot's licenses.

Baroness de la Roche, Mlle. Helene Dutrieu, Mlle. Jean Herveu and Mlle. Marvingt, in France; Fraulein Nellie Beese, in Germany; Mrs. Maurice Hewlett, in England; and Miss Harriet Quimby and Miss Matilde Moisant in America.

Among some of the notable flights are those of:

Aug. 19th.—Mlle. Jane Herveu, flying at Etampes, France, won the woman's cup.

September 1st.—Miss Quimby, at Mineola, L. I., established a speed record of a-mile-a-minute for women.

September 8th.—Miss Moisant, at Hempstead, L. I., attained an altitude of 1,013 feet.

September 12th.—Mlle. Dutrie, at Buoy, France, covered 137 miles in a non-stop flight.

October 17th.—Fraulein Beese, at Berlin, Germany, remained aloft with a passenger 2 hours and 9 minutes.

December 31st.—Mlle. Dutrieu, at Etampes, France, won the Coupe Femina for 1911 for the longest flight of the year, covering 158 miles in 178 minutes.

December 31st.—Mlle. Hervieu, flying at Compeigne, France, for the Coupe Femina, covered 154 miles in 161 minutes.

A Communication on "Aero Clubs"

January 18, 1912.

Editor "Fly Magazine,"
Bulletin Building,
Philadelphia, Pa.

Dear Sir:

I think that the trouble with American aero clubs is their domination by men whose chief interest in aviation is variously determined by their desire for social and other sorts of notoriety, by ambition to pitchfork a home town into the limelight by exploitations of the hippodrome possibilities of flight, and by the invariably unlaudable intention to profit financially by copying other men's work.

In other words, there is everything but the intelligent realization that the flight problem requires above all else the serious and earnest activities of able and far-seeing men, to develop it as as engineering industry, instead of playing with it on the basis of featuring and exhibiting what has been done abroad so long ago that there it has lost interest.

For ignorant men to play with flight is murderous, useless, and a positive injury to the art. For engineers and scientists of real abilities to give attention to its problems is to safeguard, improve, and in every way advance the art.

The clubs should be capable of discrimination and willing to help. Instead, they are falling for all the technical bunk there is, and are looking out for personal ambitions of their officials and local interests of their towns, instead for the future of a wonderful industry. I am sincerely,

VICTOR LOUGHEED.

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Aviation Jottings

It is reported that Harry N. Atwood, the well-known aviator, will attempt to fly across the Atlantic Ocean, in the Spring.

Aviator John Verrept, flying a Morane-Borel monoplane, ascended to an altitude of 3,527 feet with two passengers at Senlis, France, on January 20. The ascent required 18 minutes and the descent 11 minutes.

Naval Constructor Lieutenant Richardson, of League Island Navy Yard, Philadelphia, Pa., has been ordered to Washington to experiment with hydroplanes of Government design. After some work on the hydroplanes at Washington, he will go to San Diego to try them on aeroplanes. Lieutenant Richardson has for a long time been experimenting secretly at League Island with hydroplanes and is well equipped to carry on such work.

The banquet of the Aero Club of Connecticut was held at the Taft Hotel, New Haven, on the evening of January 11. R. J. Collier, president of the Aero Club of America, came from New York on a special train and returned immediately at the close of the banquet. Among those present were Governor Baldwin, A. Holland Forbes, president of the Aero Club of Connecticut; Henry Wise Wood, W. Irving Twombly, Hiram Percy Maxim, Colonel Norris G. Osborn, Oliver G. Simmons and A. L. Welsh.

Miss Harriet Quimby, who has been making flights in her monoplane, in Mexico, reports that flying in such an altitude is precarious business. Only on several occasions was it possible to carry passengers and on one of these President Madero made a flight with George Dyott in his Deperdussin monoplane.

At the annual elections of the Aero Club of Pennsylvania, held in the Bellevue-Stratford Hotel, Philadelphia, Pa., on January 5, Clarence P. Wynne was elected president for the ensuing year. Thomas Dougherty, Jr., the well-known polo player, was made first vice-president. The Board of Directors include Lawrence Maresch, Arthur T. Atherholt, Robert Eisenbrey, W. D. Harris, W. D. Shedwick, H. H. Knerr, Dr. Samuel Falls, Dr. George S. Gassner and H. B. Hankins. Dr. Gassner was re-elected to act as secretary.

The latest country to try the aerial postal service is Italy. The Italian aviator, dal Mistro, carried a sack of mail between the Bologna and Venice postoffices, in a Deperdussin monoplane. The distance is 101 miles and it was covered in 88 minutes, which apparently is a record flight for mail-carrying in any country.

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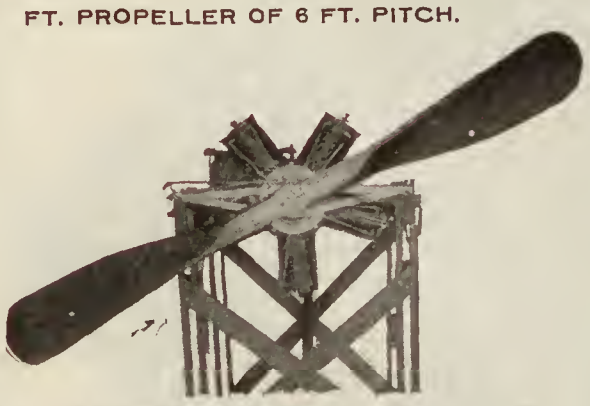
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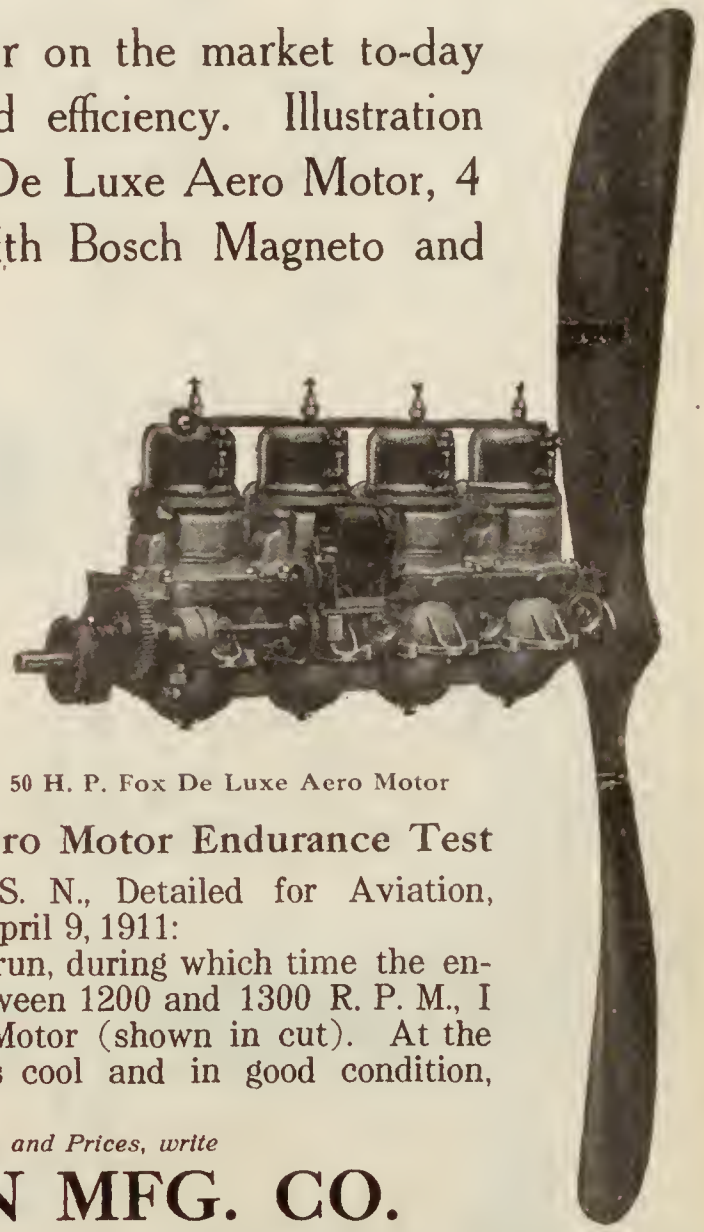
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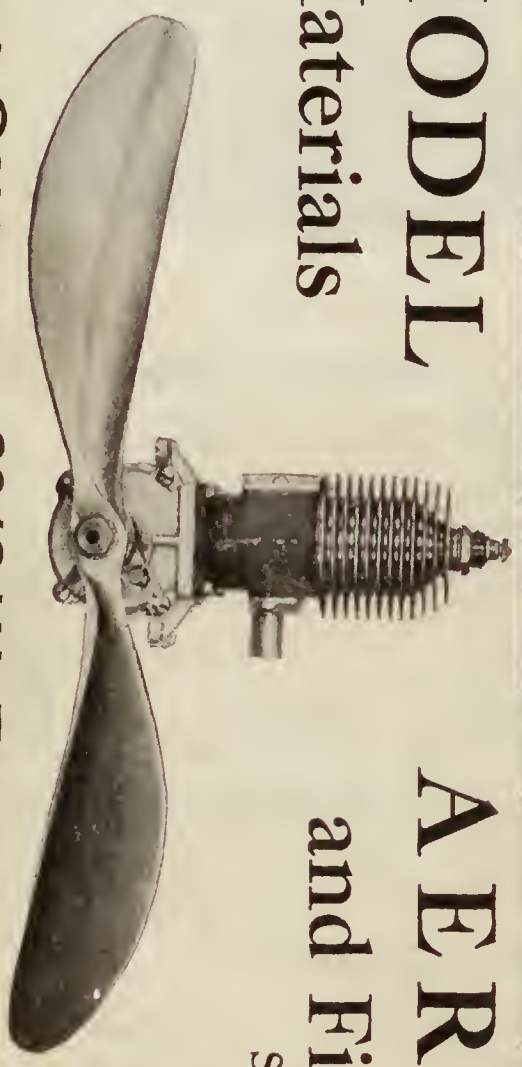
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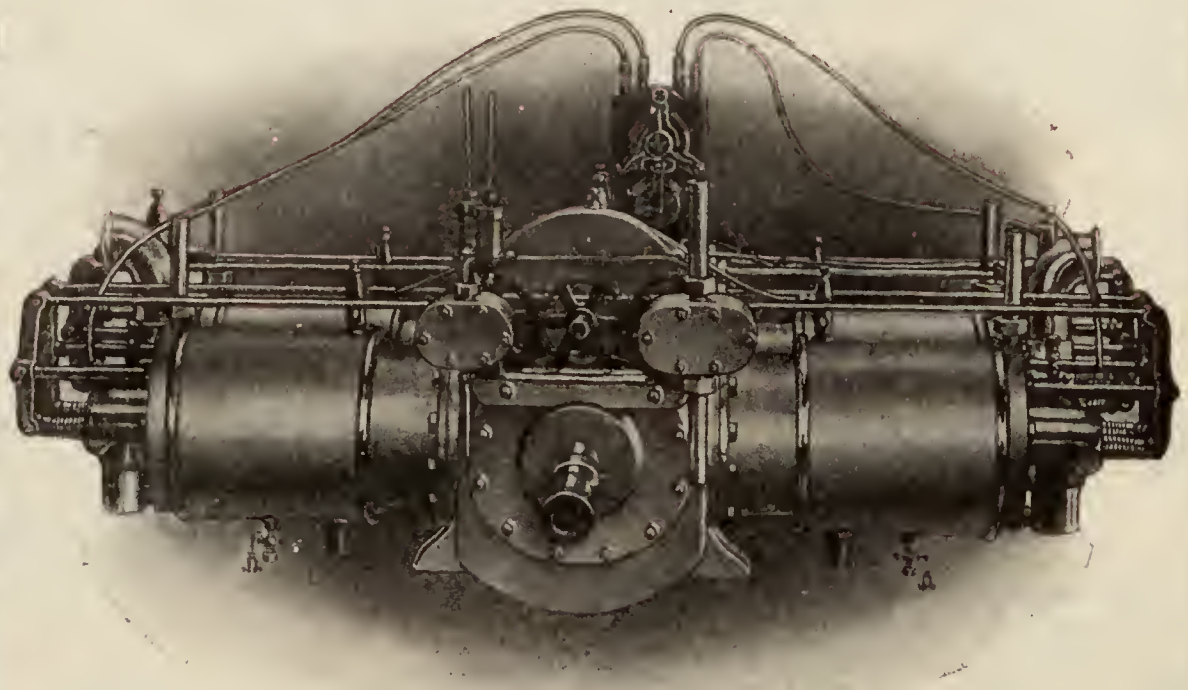
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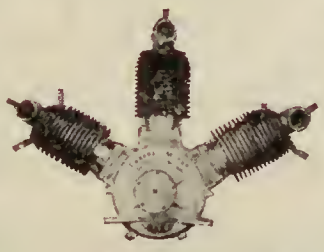
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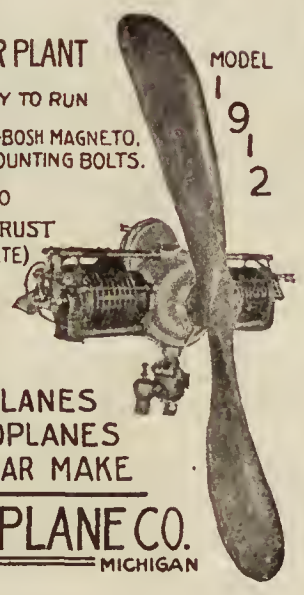
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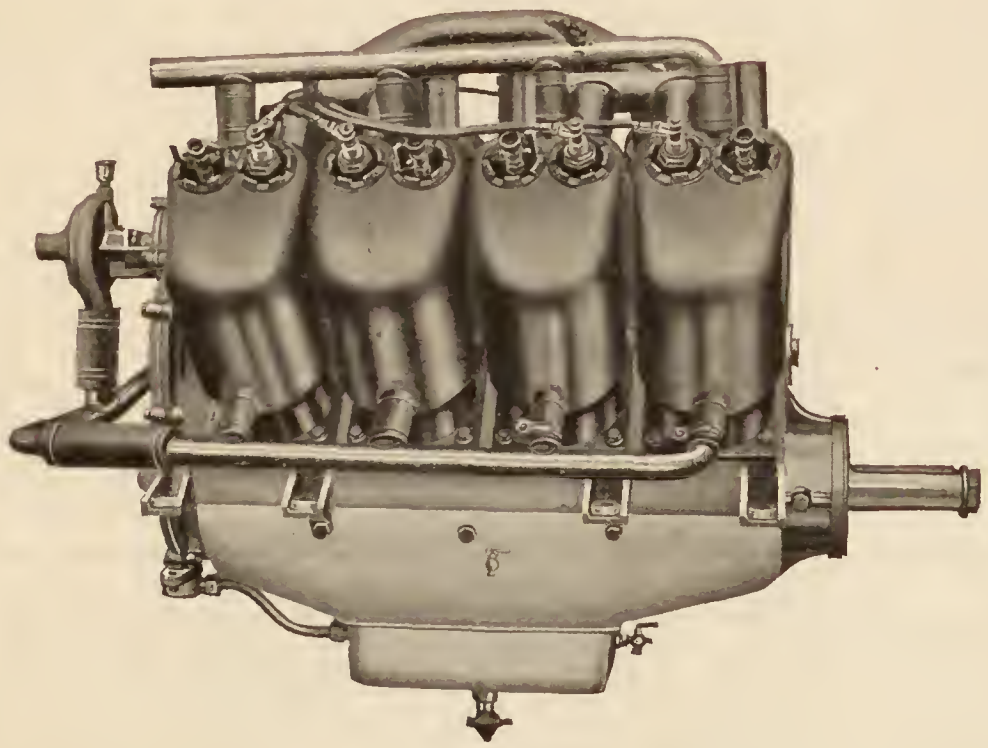
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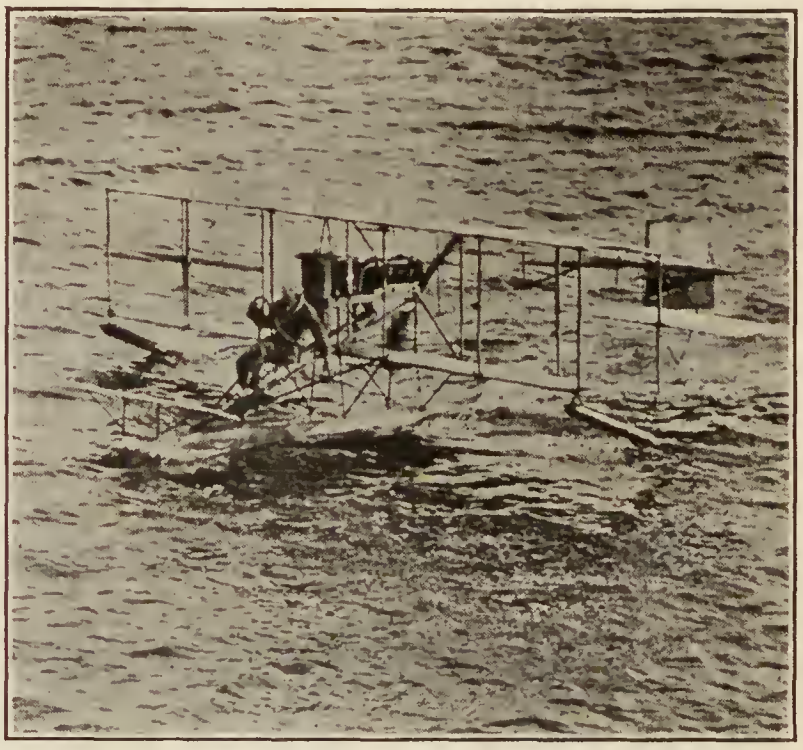
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FLY MAGAZINE BOOK DEPARTMENT

For the convenience of the readers of this magazine, a book department has been established. In this department are listed the books on aeronautics that should prove useful to the student and enthusiast. Efforts will be made to fill orders for aeronautical books not included in the recommendation list.

Orders should be accompanied by a post office money order for the amount specified, and should be addressed to Book Department, Fly Magazine, Bulletin Building., Philadelphia, Pa. Money orders should be made payable to Aero Publishing Company.

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Aeroplane Portifolio. With nine sheets of scale drawings. By D. Ross Kennedy	.55
Aerodynamics. By F. W. Lanchester (Vol. 1)	6.00
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Compendium of Aviation and Aerostation. By Colonel H. Hoernes	1.04
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Principles of Aeroplanes. Rankin Kennedy, C. E...	1.50
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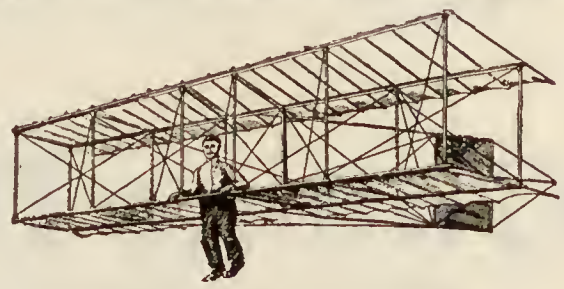
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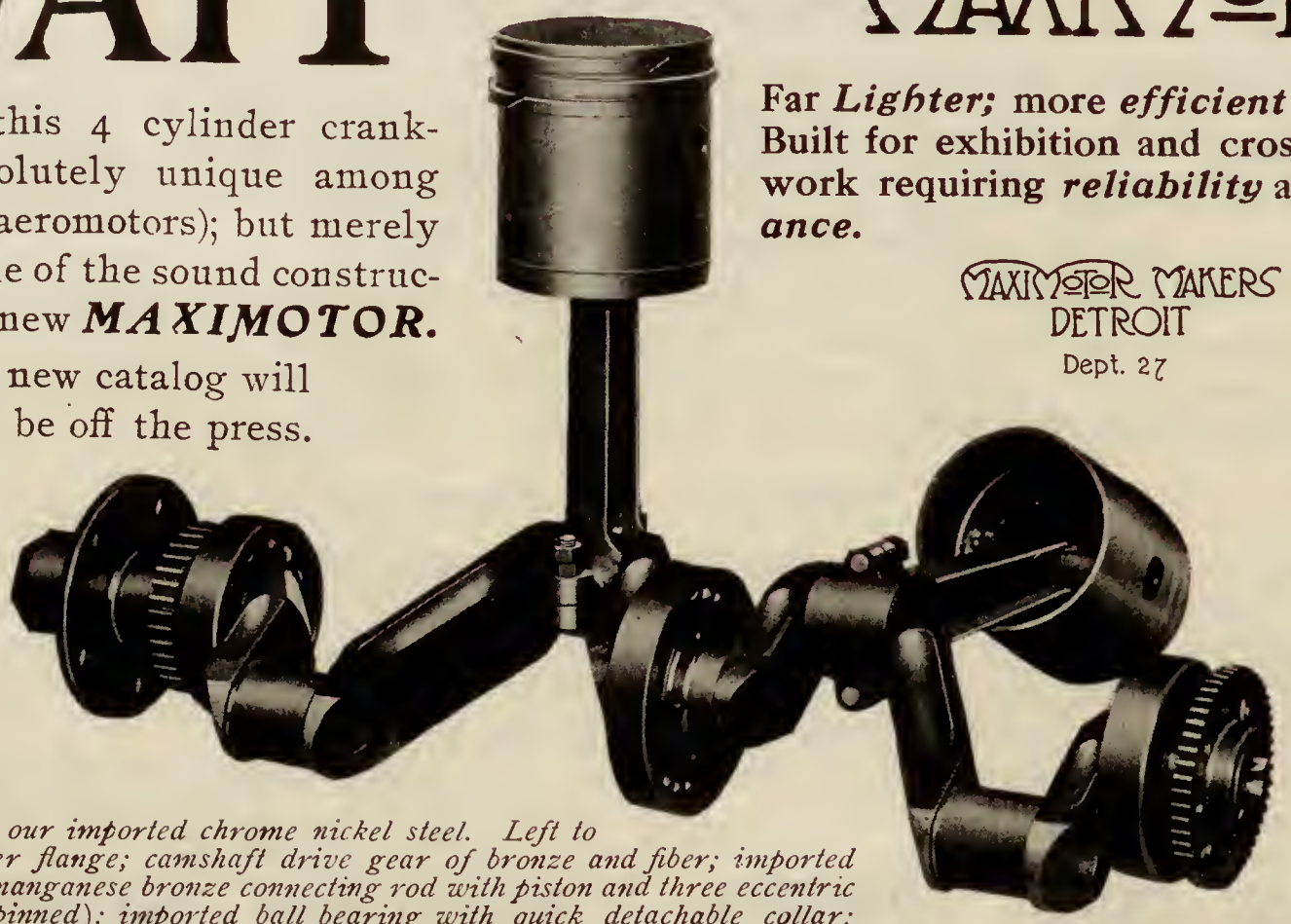
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Fly Magazine

The National Aeronautic Monthly

VOL. IV MARCH, 1912 NO. 5

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Notes of the Los Angeles Aviation Meet

Aviators Share in Gate Receipts for First Time

THE Third Aviation Meet, held at Los Angeles, California, came to a close on January 28th, after a successful week of circus flying. Unlike the other aviation meets that have made Los Angeles famous, this one came to a close, with no deficit to be made up. It was run on a percentage basis, the aviators receiving fifty-five per cent. of the gross receipts. The expenses of the meet were paid, the aviators expenses were forthcoming and there was money for all the aviators. Not as much as they would liked to have received as their share perhaps, but still real money, representing a profit on an aviation meet.

One fatality marked the meet. Rutherford Page fell to his death on the third day, Monday, January 22d. The accident was due in no way to the fault of the management but rather to the inexperience of the aviator himself.

One of the features of the meet was the flying of Weldon B. Cooke, who, with a Roberts-engined biplane, of his own construction, went out for total duration and won it with a time of 18 hours and 5 minutes out of a possible 22 hours and 30 minutes. In addition he won several of the daily duration prizes.

Lincoln Beachey, the aerial dare-devil and star aviator of the Curtiss Company, seemed to be continually courting death with dangerous spiral and hair-raising volplanes.

His flying in high winds was particularly spectacular and his apparent recklessness kept the audience in a state of excitement.

A fierce competitor of Beachey was Phil Parmalee, who, in a Wright biplane, was continually trying to outdo the stunts of the famous Curtiss aviator.

Parmalee went out for altitude on several occasions but according to reports the barographs were of such a poor sort that they refused to register above 3,000 or 4,000 feet. Parmalee used a Wright model EX biplane.

Howard Gill, who flew a Burgess-Wright, met with an accident while flying at night, on January 26th. He attempted to land from a height of about 200 feet and it is believed that a chain jammed in the pulley. The landing was a bad one, Gill had several ribs broken and the machine was badly smashed. Gill had been making a record, passenger-carrying, up to the time of his accident.

Another aviator, who carried a number of passengers, was young Farnum T. Fish. He is one of the youngest graduates of the Wright school and had been out only a few days before the meet opened. Fish also participated in the duration prizes.

Miss Blanche Scott, formerly with Captain Baldwin,, flew every day. She was one of the attractions of the meet and demonstrated that she could fly as well as a man.

Horace Kearney, who had bad luck during the summer, succeeded in winning several prizes in the speed events.

William Hoff, formerly mechanician for the late Eugene Ely, who is a recent graduate of the Curtiss school, flew but very little owing to the accident to his of the speed events.

W. B. Atwater, another pupil of the Curtiss school, flew but very little owing to the accident to his friend Page.

Turpin, a Wright aviator, came to the front with Fish and Gill as a passenger-carrier.

Hillery Beachey, brother of the famous Lincoln, flew every day and did well in the events that he entered. He does not seem to have any ambition to rival his brother in dare-devil feats.

Phil Parmalee, on the last day of the meet, gave several demonstrations of the Wright glider.

An important and interesting experiment of night flying was made at Los Angeles during the recent international aviation meet at that place. The aviators were Lincoln Beachey, Glenn Martin, and Phil Parmalee and theflying was witnessed bya large crowd,among which were a number of navy officers from the torpedo boats Paul Jones, Perry, and Preble, then in San Pedro Harbor, Beachey carried red-burning fuses on his machine,, while Martin carried a small acetylene searchlight. They rose to a height of several hundred feet, and dropped imitation bombs on a miniature city laid out on the field.

From San Pedro Harbor could be seen the searchlights of the three torpedo boats, which had been instructed by the Navy Department to co-operate in the experiments. At times the aviators could be seen plainly in the beams of the searchlights as they darted and turned in their manoeuvres. Beachey hurled six bombs from a height of 500 feet, making five "hits," which was the best record made in the unusual contest.

It was proved that competent aviators may fly and alight at night with perfect safety, provided they have sufficient landing space.

The meet has been remarked as a "circus," but not particularly of the death-defying kind. The public

Continued, page 9, 2nd column

Intercollegiate Balloon Race at Kansas City

THE second annual intercollegiate balloon race will be held under the auspices of the Intercollegiate Aeronautical Association, through the courtesy of the University of Pennsylvania Aero Club, which has relinquished its rights to the same. This race, which was held last year under the auspices of the Williams Aeronautical Society, was won by Penn.

The starting place of the race will be Kansas City. Arrangements have been made by which the Kansas City Aero Club will furnish each balloon with free gas and, in addition, will allow each balloon making a start $100 in cash to help defray the expenses of coming to Kansas City. In addition all of the contestants are promised a royal good time while they are in that city.

Owing to the fact that so few of the college men have had ballooning experience, the rules allow of any pilot being used, whether or not he is or has been connected with the college which he represents. Balloons can be rented at a very reasonable figure, and full information in regard to this will be furnished on application.

Kansas City is an ideal place to start from. Excellent gas, claimed to be the best in the country, is to be had and there is a good opportunity to break the world's record for distance. Those who took part in the International Race this last summer speak most highly, not only of the gas and facilities, but of the splendid treatment which they received at the hands of the Kansas City people.

Last year but three colleges competed in the race; Williams, Dartmouth and the University of Pennsylvania. This year definite entries have been received for Princeton, University of Virginia, University of Pennsylvania, Dartmouth, and Percy Shearman, who piloted the Williams balloon last year, has signified his willingness to go to Kansas City, though a formal decision has not yet been received from the Williams Club. There is no reason why there should not be at least ten balloons ready to start when the race is called.

The college aero clubs are requested to send in their entries as soon as possible, so that all the necessary arrangements can be made in plenty of time. As mentioned before, all those clubs which desire to rent balloons will be referred to the proper places and those which look after this first will, of course, get the best choice of available balloons.

The date of the race has not yet been decided definitely, but it will fall the latter part of June or the first few days in July. This will be after commencement at all the colleges which will enable all the men who so desire to take part in the race and in addition the weather conditions at this time will be most favorable.

$5,000,000 for Aeroplanes

ON the 13th day of February, the war and naval budgets came up in the French Parliament. The appropriations for military purposes were discussed in the Senate.

Among other things it was said that the appropriation for aviation purposes in 1911 has been $2,400,000; that in 1912 they anticipated spending $4,400,000, and that in 1913 it was expected that the sum of $5,000,000 would be expended.

M. Millerand, the Secretary of War, went into the aviation programme for the army in detail. He said it included what would be known as fifteen dirigible cruisers. The army now possessed 208 avions, or military aeroplanes, and would have 344 by the end of 1912. Plans have been drawn for thirty centres of aviation by 1913. There would then be 234 officers acting as pilots, 210 observers, 42 mechanics, 1,600 sappers and 550 soldiers trained in aviation work, with the necessary adjuncts, such as automobiles, repair trucks and traction engines.

Loridan Wins Damage Suit

IN the action for damages brought against Marcel Loridan, former holder of the world's altitude record, who in a descent at Lucy (Marne), injured a farmer, the Court rendered a verdict in favor of Loridan and rejected the claim of the farmer.

The judgment stated that no blame could be attached to Loridan, as the science of aviation had not yet advanced sufficiently to allow aviators complete control of their machines.

The Los Angeles Meet

Continued from page 8

supported the meet very well and it is the opinion that they received just the kind of flying that they wanted.

"Dick" Ferris, who was responsible for the success of the meet, is known from New York to San Francisco and his friends declare that it was the best meet ever held in Los Angeles viewed from the spectator's standpoint.

Whether it was or was not, one thing is certain and that is that the people supported it and enabled the management to turn over a nice profit to be divided among the aviators.

Chicago Gets Big Race

AT a meeting held in Chicago, Ill., on February 17, it was decided to hold the Coupé Internationale d'Aviation, known as the Gordon-Bennett Aviation race at that city.

It is intended also to establish at that time a grand circuit race, which is to have a total purse of $75,000 and to cover a course of 1,500 miles.

The Aero Club of America, the Aero Club of Illinois, and the International Aviation Association are the three organizations which took part in the meeting. Chairman French represented the first of these associations, and the other two were represented by a score of officials.

An elaborate programme of short flights will be held prior to the aviation championship event, and during the absence of the aviator entered in the grand circuit contest.

The points to be placed on the itinerary of the grand circuit racers will be decided after managers of the meet have discussed the matter with men at St. Louis, Milwaukee, Minneapolis, Dubuque, Cincinnati, Dayton, Indianapolis, and other cities.

Death Claims Grahame Gilmour

WHILE flying in a new monoplane at Brooklands, England, on February 17, D. Grahame Gilmour, the well-known English aviator, fell more than three hundred feet to his death.

Eye witnesses state that the machine buckled suddenly, while Gilmour was flying in the direction of Richmond at a speed of sixty miles an hour, and fell with its pilot to the ground.

Gilmour was dead before spectators could reach him, and he was found badly enmeshed in the remains of the monoplane.

D. Grahame Gilmour came into prominence when he flew over the regatta crowd at Henley last year. The flight was spectacular, but the Royal Aero Club took a different view and suspended his aviator's license for endangering people's lives. Gilmour appealed from the decision of the Aero Club and won a legal victory. He decided, however, not to run contrary to the order of the club and therefore refrained from competing in an important circuit race.

Between the time of his flight over the Henley course and his suspension Gilmour made the first aeroplane flight over London. He hit on the time when the House of Lords was debating the veto bill. The peers immediately stopped their discussion and ran to the windows to watch his maneuvers.

Gilmour was rated as one of the most expert English aviators.

Bleriot Flyer in Philadelphia

THERE has lately arrived in this country the Belgian aviator, Victor De Yonckheere, licensed pilot of the Aero Club de Belgique.

De Yonckheere is a pupil of the famous Jean Olieslagers and learned to fly at the Bleriot school, in Belgium, which is under Olieslagers' direction.



Victor de Yonckheere

The aviator will bring to this country a Bleriot monoplane, the duplicate of the type with which Beaumont won the famous European Circuits last Summer.

De Yonckheere will give exhibitions in America during the summer and interested persons may address him, care of FLY, Bulletin Building, Philadelphia, Pa.

Bathiat Breaks Vedrines' Record

FLYING at Douzy, France, on January 27th, Bathiat, on a new 100-h. p. Gnome-engined monoplane exceeded the speed record for 100 kilometres (62.137 miles) recently established by Pierre Vedrines on a Deperdussin monoplane.

Bathiat covered the 100 kilometres in 41 minutes and 29 seconds. The former mark was 41 minutes, 56-4/5 seconds.

A Correction

THE photograph of Ilner and his Chinese pupils on the front cover of the February issue of FLY, should have been credited to Paul Thompson, New York City.

Varnished Balloons versus Rubber Aerostats

Why Varnished Balloons are Superior

By Carl E. Meyers

AFTER reading "Why Varnished Balloons are Superior to Rubber," as developed by Capt. H. E. Honeywell in FLY of December, 1911, I wish to say that I concur wholly with his views as to relative durability, imperviousness and general advantages, based on my own continuous experience of over thirty years in the construction and use of machine-varnished hydrogen-balloon fabric.

Hydrogen is a particularly elusive element. Many years ago I asked a friend who was expert in the use of compressed hydrogen what he thought of its ability to escape confinement.

"Well," he said, "I'll just tell you. It's more nimble than spilled quicksilver. It's as hard to find as a vacuum. When you get it and begin to compress it, it seems next to nothing at first; but it soon feels harder and tougher, until finally you can't squeeze it any more than a solid. You cork it up tight, and store it away, and bye and bye, if you wait long enuogh, you haven't got any. It just oozes through cast iron 'like a witch thro' a key-hole.' "

After toying half a life time with hydrogen in its various whims and moods I can easily diagnose this substance by those symptoms.

In professional aeronautics it has been my problem to permanently confine hydrogen in a light-weight gasbag by elastic varnish which was immune from spontaneous combustion. Each coating applied by hand brushes made the envelope more impervious, but thicker, heavier,—and like thick oil-cloth, more breakable when folded hard or often.

First I achieved a suitable varnish, and next a competent machine for repeatedly applying, superimposing, seven or eight exceedingly thin tissues of flexible, elastic, non-viscous varnish,—free from oxides or "driers" which sow the seeds of destruction. I have such fabrics thirty years old, still impervious and non-adhesive, and have used hydrogen balloons year after year, subject only to long use and abuse and wear and tear of the elements, and can show older balloons in more perfect condition than any rubber-coated hydrogen gasbags in existence of half the years and use, of equal size and weight.

No single coating is better than a sieve for hydrogen. The ordinary rubber toy balloon is sufficiently convincing proof of this,—though it be additionally coated with gelatine to prolong its stay.

Rubber is naturally viscous, or viscousity itself, and the sulphur used for "curing" or oxiding or vulcanizing rubber is inevitably destructive to long life or elasticity. In addition commercial rubber has been so adulterated by inferior substances to cheapen or color or reduce it to required conditions of trade or manufacture that the name "rubber" has ceased to be synonymous, while treated rubber has "gone up," and "pure" rubber is "out of sight."

One of the features of rubber is its facility for invoking static electricity out of the atmosphere through friction. For example, lay a strip of thin paper on a warm wall and stroke it with a soft rubber pad or eraser, and the paper remains attached to the wall by invoked electrical attraction. If the paper is a wide sheet, detach it carefully by two most distant corners and lay it on a metal tray, insulated by a supporting glass tumbler; then upon approaching the tray carefully with your knuckle you will get a smart shock and a snapping spark of fire which can light gas at a burner. If you do not succeed you have been clumsy in your manipulations. Try again.

I have had abundant experience with igniting hydrogen balloon bombs, and you may safely take my word for it that a rubber balloon is a very respectable electro-hydrogen bomb. Various foreign balloon corps as well as ours have demonstrated this, apparently by exciting electricity through aerial friction,—discharging it aloft, or on return to earth,—with loss of balloon or victims. You can never repeat this accident with the same balloon, and you always know just when it happens.

Coating a silk balloon with aluminum paint also provides an excellent surface for exciting and "condensing" an electrical deposit on the insulated metal, for dynamite pryrotecnics on contract. This has resulted at home and abroad.

Aside from these peculiarities the chief fault I have to find with rubber balloons is that they waste gas, are heavy and clumsy to handle, expensive and slow to build, and have short lives of not very effective usefulness, and become either sticky or stiff.

Probably I have made more balloon-hydrogen and made and used more hydrogen-balloons than any other person in America. I have always sought the best materials and methods. Everything considered, American cotton, or "sea-island" cotton is most valuable and cheapest.

Sun-drying varnish without oxides, prolongs life, and numerous coats retain hydrogen. Hand varnishing cannot produce so light-weight, flexible or enduring

balloons, as may be made from machine-varnished fabrics in one-tenth the time. I have made twenty captive hydrogen balloons in ten days; and ten in five days on U. S. A. specification.

The captive balloon is the highest type of aeronautical construction, demanding hydrogen for operating anywhere with portable generators, and of half the size required with coal illuminating gas; easier handling during constant use unprotected out doors for days and weeks; retaining its subtle contents for long periods, at great saving, and making practicable long-extended voyages for days when finally released.

Of my experience I will say this: I have never descended because I had to from loss of gas, and have remained hour after hour aloft with top and bottom exits closed, and in control of height and equilibrium.

Most balloonists do not know what a gas-tight balloon is from their experience. The practice seems to be to build a huge and heavy balloon, stuff it with heavy gas, load on a ton or less of ballast to compensate for gas oozing out continuously, and fight for life to the end.

The voyager is not to blame, and does not complain, seriously, for he knows little of other conditions; but he has my condolence, if he reforms. I have endeavored to start many people right by extended rambles throughout the country with a captive balloon carrying passengers.

The outfit consists of portable hydrogen generators; a 3-4-passenger balloon with automatic safety valves; a specially hung, netting-enclosed safety-car, always facing one way; a cable absolutely controlled by a windlass having sensitive friction clutch and brake more perfect than an angler's reel; and a motor competent for good speed and safe return; accompanied at night by a penetrating searchlight, whose rays suddenly thrown athwart the gassy globe, bring into view a new-born orb out of darkened space with startling effect.

The captive's flight is not a mere rise and fall; it is a soaring sail or ramble to and fro, 'round and about with the pushing breezes which tell that you are "going some," though you cannot yourself tell just when you have reached your dizziest height undizzied, or started to return. It is all view, and all sensation; but not of danger, for you own the earth, and swing safely attached to it. Thus you rise and sail and soar with everything in sight, till you land as at a boat-dock.

Just a hasty fact or so in conclusion. I have covered Eastern Massachusetts season after season, and altogether carried over 275,000 people, with no harm to any during my entire career. A proper gas balloon is safer than a wheel barrow. The State and Municipal Board of Health examined and certified to the safety of my first captive balloon equipment used at Coney Island, 1899, and subsequent results justify the safety certificate. Similar requirement for aeroplanes would reduce their death rate. The gas-tight bag is certainly a life-preserver. In long voyages it is distinctly essential. It inspires confidence and permits success.

A leaky vessel on sea or in air is constant menace, demanding constant vigilance, while one may safely sleep in a well-varnished balloon.

Parachute Inventor Jumps to Death

WHILE testing a parachute of his own invention, Franz Reichalt, an Austrian tailor, jumped to his death from Eiffel Tower, Paris, France, on February 4th.

Reichalt had been interested in aviation problems and had recently decided to complete for a prize offered for the best form of parachute or other device, that would protect aviators from accidents while in the air.

After continuous experimenting, Reichalt began to petition the authorities to allow him to make a serious trial from Eiffel Tower.

It was at last obtained with the stipulation that the test was to be made with a dummy. There was little secrecy about the fact however that Reichalt intended to substitute himself for the dummy.

Several hundred people gathered about the Tower on the morning that the attempt was to be made. Reichalt arrived with a friend who was carrying his parachute, an apparatus of khaiki colored canvas, weighing about twenty pounds with a surface of nearly forty square yards.

M. Hervieu, who has made numerous experiments with similar devices, examined Reichalt's parachute and expressed great doubt to its practicability, advancing technical arguments that Reichalt could not overcome.

M. Hervieu, on seeing a preliminary test from a distance, declared that the parachute required too long a time to open itself.

But Reichalt was not shaken in his conviction of success and a few moments later he climbed over the rail of the first platform of Eiffel Tower and threw himself forward.

His descent was one of unbroken acceleration one hundred and eighty feet to the ground. The parachute never opened. Reichalt's body was picked up, a shapeless mass, by the police and taken to the nearest infirmary.

The accident caused a protest to be raised against a repetition of such experiments except with the fullest approval and knowledge of specialists.

Coffyn Flies Hydro-aeroplane in New York Harbor



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Coffyn over the Ferry-boats in New York Harbor

OVER the same stretch of water that Wilbur Wright first demonstrated to the people of New York City the ability of his biplane, Frank Coffyn, on February 6th, gave a public exhibition of another kind of aerial craft, the Wright hydro-aeroplane.

Coffyn started on his first flight about four o'clock in the afternoon at the foot of Twenty-third street. The river was full of ice floes but this did not bother the aviator as he rose easily from the water and passed over them, descending again beyond the ice pack.

Leaving the water again Coffyn soared up the river past the apartment houses on Riverside Drive and then back again. After a short rest on the water, the hydro-aeroplane again took the air and journeyed down by the Battery, and then returned. His flights totaled about twenty minutes.

In commencing his flights Coffyn had towed his machine out into the river on a raft and when he returned from his flight to the Battery, he landed within ten feet of it. Coffyn jumped to the raft and pulled the hydro-aeroplane aboard.

But the afternoon was not to be uneventful for just about that time inquisitive tugs and ferryboats began to arrive. The swell from these vessels drenched Coffyn and his mechanician up to the waist and washed the hydro-aeroplane off the raft. Fortunately the mechanician threw a rope after the machine and it caught. They drew it near enough for Coffyn to jump aboard and with icicles hanging from his clothing he succeeded in getting the aeroplane on the raft once more. The tugboat which was towing the raft then put on full steam while the guests on board called to the other vessels to "keep away a bit."

But the visiting boats had no intentions and the wash from them kept drenching the two men on board the raft and threatening to wash the biplane into the river again.

Suddenly the raft began to break up and once more the aeroplane took to the river. But once more it was rescued. The captain of the tug, who was growing weary in well-doing, suggested that Coffyn fly ashore, but Coffyn surveyed the ice fields and

ventured that the pontoons on the craft would sure get punctured if he tried it.

Meanwhile the tug and its tow kept drifting down the river while the curious river skippers kept the raft and its cargo surrounded much to the annoyance of the tug captain, who swore softly from time to time and said many unkind things about the curiosity of his brother captains.

At length they spied the breakwater in front of the police station of Harbor Squad A near the Aquarium. Just about the same time some one on land ordered the Station launch to put out to the aid of the strange craft bobbing up and down on what was left of a raft. After some maneuvering they succeeded in getting both the machine and the raft inside the stone enclosure of the Station.

Leo Stevens had charge of the guests of Coffyn on board the tug and his opinion of the curiosity of river captains coincides exactly with that of Captain Bradley, who commanded the tug.

Although Coffyn had decided to give up river flights for a while, partly on account of the cold and also on account of the experience he had passed through, Wednesday, dawned with a sort of alluring warmth that appealed to Coffyn as flying weather and so he journeyed down to the Battery and had his hydro-aeroplane towed out in the river.

After skimming about, demonstrating the ease with which a hydro-aeroplane will rise from and settle on the water, Coffyn lifted the machine from the water and soared away in the direction of the Statute of Liberty. He circled it nicely and returned.

He then took a passenger aboard and started for the Statue once more. He circled it again with ease and returned.

More flights are promised by Coffyn and it is also said that there will be a number of passenger-carrying flights made.

At the Signal Corps School

Augusta, Ga., February 15, 1912.

FEBRUARY, too, has been a month of bad weather in this section of Georgia and therefore there has been little work of value to aviation attempted. Flying was discontinued on January 12, owing to a severe cold wave and on the night of January 13, a heavy snow fell, continuing until the morning of the 15th, at which time all machines were ordered moved from their canvas shelters, for fear that the weight of the snow on the tents would cause damage to the aeroplanes.

The 16th and 17th were devoted to repairing the sheds. Meanwhile the machines were lashed on the lee side of the numerous outbuildings to the rear of the main and school buildings.

Flights were again resumed on the 18th, but none of the aviators seemed anxious to make more than two or three flights on account of the extreme cold.

The school had as its guest on Saturday and Sunday, January 20th and 21st, Wilbur Wright, who expressed his delight at the steady progress that the officers and men are making in the art of aviation from both a theoretical and practical standpoint.

Mr. Wright refused to make any statement as to what views he has in regard to the future development of the military aeroplane.

The wireless sending set that has been adjusted to the Wright aeroplane has not proven a success up to the present time, owing to the fact that the power of the four-cylinder Wright engine is not sufficient to lift the weight of the aviator, operator and sending equipment above the necessary three hundred feet mark, experiments along these lines have ceased for the time.

Captain C. DeF. Chandler, in command of the school, was on leave of absence from January 22d to 29th.

Captain Paul Beck, the Curtiss operator and instructor, reported at the school for duty on January 28th.

A new "Curtiss Dual Control" biplane, recently purchased by the Government, has been shipped from the Curtiss factory and is expected here shortly.

About 3.30 P. M., on Saturday, February 3d, Captain Beck, in a "Baby Curtiss," equipped with a 60-h. p. Curtiss engine, left the field in a 32-miles breeze. He made a beautiful start from the northern end of the field and in an attempt to gain his altitude, while going south in a strong westerly wind, was compelled to pass a large barn about 200 yards from his starting point.

The breeze at that point was very strong and gusty. The aviator was flying at an altitude of about thirty feet when he reached the barn, and at this point the machine was tossed about like a cork in the sea.

The action of the wind at the east end of the barn drew the machine completely out of its course, turned it sideways and sent it plunging to the earth, a total wreck, with the exception of the engine. Captain Beck, by means unknown to himself or the spectators, escaped without a scratch.

The writer was present at the time of the accident been and is at loss to understand why an experienced aviator will from time to time attempt to make a start in a cross wind. tI would appear to the writer that this is an unnecessary and dangerous risk and it is a

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THE AERO CLUB OF PENNSYLVANIA

Room C. Bellevue-Stratford Hotel
Philadelphia, Pa.

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NOTICE

To the members:

A stated meeting of the Aero Club of Pennsylvania will be held in Room C, Bellevue-Stratford, on March 1, 1912, at 8 P. M. The program cannot be announced but an interesting meeting is assured.

George S. Gassner,
Secretary.

CLUB NOTES

At the meeting held on February 2, the following resolution was unanimously adopted:

Resolved, that "Fly" Magazine be designated as the official organ of the Aero Club of Pennsylvania, and that all official notices be printed therein.

Resolved, that the secretary be authorized to subscribe for a copy of "Fly" Mazagine to be sent to each life resident and non-resident member whose dues are paid for the current term, and that the treasurer be authorized to pay for the same.

George S. Gassner,
Secretary.

Plan Club Banquet

The question of holding a banquet was discussed and on motion it was resolved that it was the judgment of those present that it was desirable to hold a banquet at a cost not to exceed $10 a cover.

Lawrence Maresch and H. B. Hankins have been appointed a temporary committee to investigate and report at the next meeting.

Favor Aeronautical Laboratory

The following resolution was unanimously adopted and ordered forwarded to the Aero Club of America:

Resolved, that the secretary of the Aero Club of Pennsylvania be instructed to express to the Aero Club of America our heartiest appreciation of its efforts to secure an adequate endowment for a national aeronautical laboratory, and to proffer our good will and cooperation in that important enterprise.

George S. Gassner,
Secretary.

Seek Aviation Field

A committee consisting of Messrs. Brown, Crowley and Harris, was apointed to investigate the possibility of securing an aviation field or hydro-aeroplane station on Petty's Island or elsewhere, and to endeavor to secure the co-operation of the country clubs in arranging for flying on their grounds.

German Aviation Circuit

AT the recent meeting of the Upper-Rhine aviation circuit committee, it was decided that no competing aeroplane was to be fitted with a motor of more than 100-h. p., and that each competitor must carry a passenger with him. The prize is to be awarded to the machine which completes the circuit in the shortest time, including all stoppages for repairs.

The aeroplanes must be made in Germany, but the motors may be of foreign manufacture.

Siam To Buy Aeroplanes

IT is announced that the Minister of War, of Siam, is going to send three Siamese officers to learn aviation and to purchase aeroplanes.

At the Signal Corps School

Continued from page 14

fact that many accidents are due to this careless practice.

A "Gyro" seven-cylinder revolving motor, made by the Gyro Motor Co., of Washington, D. C., has been purchased by the school and will be installed in the Curtiss aeroplane.

On the 9th, instant, 2nd Lieut. F. M. Kennedy, 10th Infantry, qualified for an aviation pilot license according to the rules of the International Aeronautic Federation. The first landing was made with the aeroplane at rest fifteen feet from the mark previously designated; the second landing 35 feet from the mark. The tests were made with a Curtiss Biplane, 8-cylinder engine.

During the week the officers made thirty-two flights having a total duration of five hours and thirty-two minutes.

—*From Fly's Correspondent.*

Application of Theory to Ornithopters

The Action of the Flapping Wing

By Herbert Chatley, B,Sc. (Eng.), A.M.I.C.E.I.

Professor of Civil Engineering Tang Shan Imperial Engineering College.

THE essential feature of the ornithopteri is the reciprocating motion of the supporting surfaces. A study of bird flight shows that in nearly all cases ascending flight is performed by reciprocating motion, horizontal flight by reciprocating motion in most cases, and descending flight almost always by gliding. The wings therefore act to some extent in the same manner as the "aerofoils" of a gliding machine, and it may be true (as most areoplanists assert) that with a continuous means of propulsion (the propeller) gliding flight is mechanically preferable in all cases. Nevertheless there is the great advantage in bird flight that no great initial velocity is required, and there is no loss of energy do to an indirect means of propulsion. Hence there still exists a large class of would-be aviators who believe in the flapping type.

The researches of Borelli, Pettigrew, Marey and Mouillard have supplied much information as to bird flight, but no exact knowledge was obtained until Marey made his cinematographic and sphygmographic observations. It then appeared that the wing twisted during reciprocation (see diagrams in my book, "The Problem of Flight," chap. iii.), and it immediately became conceivable that the wing acts as an aerofoil does, and not with a simple beating action. It is difficult to see, if the wing does not twist, how the difficulty of the down thrust on the upstroke can be prevented.

Lord Rayleigh in his famous paper to the Manchester Literary and Philosophical Society in 1900, gave a tentative mathematical analysis of bird flight, but does not seem to have definitely considered the "attitude" of the wing in the different points of its path, but the following investigation is on very similar lines to those suggested by him. As a matter of fact, I think that the aforesaid paper shows a more general knowledge of the fundamental principles of flight than any work which has appeared until we reach Lanchester's book, Many of Lanchester's important conclusions as to friction and economics of flight are derivable therefrom, and most of us have been blind these few years.

The most important point in connection with the action of the wing is the direction of its motion relatively to the air. *This is not the same as that of the body*, but differs therefrom by a certain angle. If the vertical velocity of reciprocation of one point of the wing at a certain time is v, and the body has a horizontal velocity V, then the wing is proceeding in an inclined direction upwards or downwards (according as v is upwards or downwards), the inclination being

$$\theta = tan^{-1}\frac{v}{V} \quad \ldots \quad \ldots \quad (1)$$

with the horizontal.

In order to simplify the mathematical treatment of the subject I will make the following preliminary assumptions :—

(1) That the wing is an aeroplane. This is quite untrue in the case of birds, but we can modify it to suit aerocurved surfaces afterwards.

(2) That the reciprocation is wholly vertical. This is also untrue, since the wing swings about its root in an arc, but, as the horizontal component of the velocity at each position in symmetric flight will neutralize that on the other wing, it is only necessary to find the point on the wing at which there is the mean effective velocity, in order to convert from that velocity to angular velocity of the wing about its axis in the root.

(3) That this vertical velocity of reciprocation varies harmonically throughout the cycle, and that the "attitude" of the wing similarly varies, but not necessarily in the same phase.

(4) That the line of flight is horizontal.

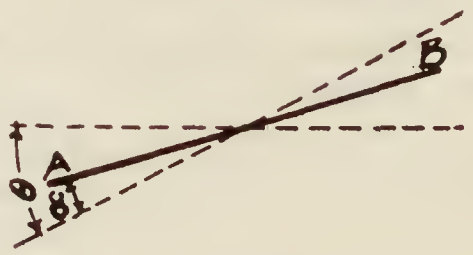


Fig. 1

The diagram Fig. 1 represents the aeroplane $A\,B$ in section, wilh a forward horizontal velocity V and a downward velocity v. The actual velocity in still air will then be

$$U = \sqrt{v^2 + V^2} \quad \ldots \quad \ldots \quad (2)$$

The angle of attack (*i. e.*, the angle between the aeroplane and the direction of relative motion) is α, and the reaction on the surface is then

$$N = K\,A\,U^2\,sin \quad \ldots \quad \ldots \quad (3)$$

There will be a vertical and upward component

$$L = N\,cos\,(\theta - \alpha) \quad \ldots \quad \ldots \quad (4)$$

and a horizontal and forward component

$$T = N\,sin\,(\theta - \alpha) \quad \ldots \quad \ldots \quad (5)$$

In order to express the position of the plane with reference to the axis of the body (in this case horizontal) I will call $(\theta - \alpha) = \beta$, so that $\alpha = \theta - \beta$.

It should be observed that T here acts as a propelling force, and is opposed by a frictional resistance depending on the form and area of the wings and body, and to a very slight extent, on the position of the wing. We will call this resistance R. Under conditions of turburlent motion

$$R = \mu\,V^2 \quad \ldots \quad \ldots \quad \ldots \quad (6)$$

The vertical component of this resistance will be negligible. Hence the vertical equation of motion is

$$M\frac{d^2z}{dt^2} = Mg - KAU^2\,sin\,(\theta - \beta)\,cos\,\beta \quad \ldots \quad (7)$$

and the horizontal equation of motion is

$$M\frac{d^2x}{dt^2} = \mu\,U^2 - KAU^2\,sin\,(\theta - \beta)\,sin\,\beta \quad \ldots \quad (8)$$

These are not integrable equations because U and β are unknown functions of the time.

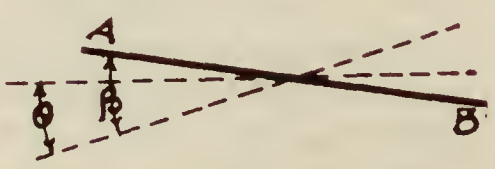


Fig. 2

Fig. 2 represents the wing ascending and the notation employed above can be again used. *In this case, however, the reaction cannot produce a forward component.* For β being greater than θ there is a lift, but the reaction is directed backwards, and the horizontal component will cause considerable retardation.

If θ is greater than β then there is a reaction on the upper surface and the wing is subject to a downthrust. Even if this were permissible to a slight extent the forward component would not be appreciable without a very considerable downthrust.

Hence we see that values of β either greater than or less than θ are aërodynamically objectionable, and we have the conclusion that $\beta = \theta$ during the upstroke.

This condition will not necessarily apply when both θ and β are very small, since then the resistance due to an excess of β over θ would not be very appreciable, and the prolongation of the lift would be useful. Furthermore, in the case of aërocurves the reaction is directed somewhat a little forward of the normal, so that

with such aërocurves a small excess of β over θ when both are small would not necessarily cause any aërodynamic resistance.

Reverting now to the downstroke we see that in order that this should be most effective the ratio of the thrust to the lift should be maximum. This depends on both β and θ, and is identical with the ordinary problem of gliding. There are two criteria for the value of $\theta - \beta$ (the angle of attack) :—

(1) It should be about 6° for an aëroplane (Lanchester, Ferber).

(2) It should be about half the gliding angle θ (Penaud, Ferber).

Employing the first condition we see that when the velocity of reciprocation is a maximum (*i.e.* θ is a maximum)

$$\theta - \beta = 6^\circ \quad \ldots \quad \ldots \quad (9)$$

Given the maximum velocity of reciprocation v_1 we have then a means of finding the two maximum values of β. On the upstroke it has been shown that $\beta = \theta$. Hence we have

$$\beta_1 = tan^{-1}\frac{v_1}{V} \quad \ldots \quad \ldots \quad 10)$$

and on the downstroke

$$\beta_2 = tan^{-1}\frac{v_1}{V} - 6^\circ \quad \ldots \quad (11)$$

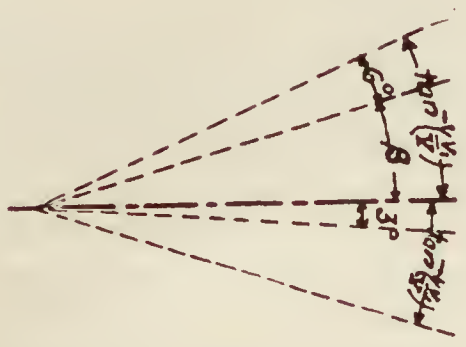


Fig. 3

These conditions can be satisfied if we suppose that β varies harmonically in the same phase as v from a value of 3° to a range of $tan^{-1}\left(\frac{v^1}{V}\right) - 3^\circ$ above and below this (see Fig. 3).

Hence expressing v and β as functions of the periodic time τ we have

$$v = v_1 \sin\left(\frac{2\pi}{\tau}t\right) \quad \ldots \quad \ldots \quad (12) \text{ and}$$

$$\beta = 3^\circ + \sin\left(\frac{2\pi}{\tau}t\right)\left\{tan^{-1}\left(\frac{v^1}{V}\right) - 3^\circ\right\} \ldots \quad (13)$$

so that we have the following table of values :—

	Epoch. $\frac{2\pi}{\tau}t$	*Velocity.* v	*Attitude.* β
Beginning of upstroke or end of downstroke	0 ($\tau = 0$)	0	3°
Middle of upstroke	$\frac{\pi}{2}$ ($\tau = \frac{1}{4}$)	v^1	$tan^{-1}\left(\frac{v^1}{V}\right)$
End of stroke	π ($\tau = \frac{1}{2}$)	0	3°
Middle of downstroke	$\frac{3\pi}{2}$ ($\tau = \frac{3}{4}$)	$-v_1$	$-tan^{-1}\left(\frac{v^1}{V}\right) + 6^\circ$

Marey's diagrams may be tested by comparing the values of β given in formulæ 10 and 11, with his diagrams of the wing cycle ("Le Vol des Oiseaux," "Animal Mechanism," and my own book, vide Suprâ). The agreement is fairly close.

It should be observed that the quantity v_1 is involved. As far as I recollect the maximum values of β are about 25°, so that $tan^{-1}\frac{v_1}{V}$ equals about 20°, and v therefore equals $0{\cdot}36V$. This will be the velocity of a point about $\frac{2}{3}$ the length of the wing from the root.

In correcting for pterygoid section it is necessary to note that the re-action is inclined about 2° or 3° forward from the normal to the chord of the curvature, so that the resistance is decreased. This correction will more particularly apply to the resistance question considered below.

On the Lift and Horizontal Force in Relation to Weight and Head Resistance.

I have given above formulæ relating to the lift and horizontal component of the aerodynamic reaction, but it is necessary to average these with regard to time throughout one cycle in order to find if the weight and resistance can be balanced.

By formulæ 3 and 4 the lift is

$$KAU^2 \cos\beta \sin(\theta - \beta)$$

which, noting that v varies harmonically, is equal to

$$L = KA\left\{V^2 + v_1^2 \sin^2\left(\frac{2\pi}{\tau}t\right)\right\}\cos\left[3^\circ + \sin\frac{2\pi}{\tau}t\left\{tan^{-1}\left(\frac{v^1}{V}\right) - 3^\circ\right)\right\}\right] \times \sin\left\{tan^{-1}\left\{\frac{v^1 \sin\left(\frac{2\pi}{\tau}t\right)}{V}\right\} - \left[3^\circ + \sin\left(\frac{2\pi}{\tau}t\right)\left\{tan^{-1}\left(\frac{v^1}{V}\right) - 3^\circ\right\}\right]\right\} \quad (14)$$

and a similar substitution may be made for T_1 the thrust.

These forms do not appear to be integrable, but from the nature of the problem they can have no appreciable value during the first half of the cycle.

To apply them to any particular case they must be calculated for several positions during the downstroke, plotted to a time base and their average value so obtained. Let these averages value $L_\circ$ and $T_\circ$ for the half cycle. Then the averages for the whole cycle will be $\frac{L_\circ}{2}$ and $\frac{T_\circ}{2}$, and for steady flight we have

$$L_\circ = 2W \quad \ldots \quad \ldots \quad (15)$$

$$T_\circ = 2R \quad \ldots \quad \ldots \quad (16)$$

Roughly these quantities will vary harmonically through the hemi-cycle of the downstroke, for the difference between θ *and* β varies harmonically on account of the simultaneous harmonic variation in these quantities. The resolution of the vector with regard to β will, however, prevent this from being exact, as well as the initial value of β, and the variation in the relative velocity.

If we however assume a harmonic variation in the lift and thrust then the averages throughout the whole cycle will be $\frac{1}{\pi}$ times the maximum values.

The maximum values are

$$L_{max} = KA(v_1^2 + V^2)\sin 6^\circ \cos\left(tan^{-1}\frac{v_1}{V} - 6^\circ\right) \quad (17)$$

$$T_{max} = KA(v_1^2 + V^2)\sin 6^\circ \sin\left(tan^{-1}\frac{v_1}{V} - 6^\circ\right) \quad (18)$$

As a very rough approximation we might say that

$$L_{max} = \pi W$$

$$T_{max} = \pi R$$

for steady flight.

As regards the possibility of constructing machines on the ornithopteric principle, it is fairly clear that the chief difficulties lie in the question of timing and adjusting the angle of attack, and I hope the above discussion of the aerodynamic action may render considerable assistance in this direction.

Challenge For Balloon Cup

THE Aero Club of America challenged the Deutscher Lutschiffer Verband, The National Aeronautic Association of Germany, for the balloon championship on February 9th.

It is understood that an elimination contest will be held, in Kansas City, to determine the representatives of the Aero Club of America.

The contest will be held in Germany this year owing to the fact that the Championship Cup was won last year by Lieut. Hans Gericke, when six balloons, representing three countries started. Only countries affiliated with the International Aeronautic Federation are eligible. As England and France have indicated they will enter two or three balloons each, there will probably be four countries represented.

FLY MAGAZINE

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HENRY J. JOHNSON.....President
MICHAEL F. DONOGHUE.....Vice-President
A. H. WOOD.....Secretary and Treasurer

HOBART BISHOP HANKINS.....Managing Editor

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Advertising rates will be furnished on application.

Dare-devil Flying

SOMBRE emphasis should be placed upon the fact that aviation is still in the stage of development. Despite the tremendous advances made in the science there is much knowledge regarding the laws of the air that still remains unknown to man. It is, therefore, the better part of valor to give strict attention to straight-away flying. The serious progress of aerial navigation should come in advance of vaudeville flying, and the honor and praise should go to the more skillful rather than the sensational aviator. The deaths of the past twelve-month number some of the greatest aviators and designers that the world has known. Despite their supposed familiarity with the science they have added to the tragedies of aviation. It would seem that some of these worthy aviators, with a growing confidence, had lost the sober sense of danger that should be ever present. Loops, spirals, circles and electrifying dips have followed the disregard of peril and the predicted outcome of this has become a certainty. Aviation has a scientific purpose apart from the performance of hair-raising feats. Aeroplane flights are intended to demonstrate the feasibility of aviation rather than the foolhardiness of the operator.

Competitive Meets

WHATEVER may be said of the Los Angeles meet and its management, there is one feature that should impress itself upon every one interested in aeronautics. That is the fact that it was run on a percentage basis.

According to reports the aviators were the only ones who considered that the meet was not a financial success, inasmuch as the money to be divided among them amounted to less than $15,000.

The promoters of the meet were enabled to get their money back, and in addition the aviators expenses, a sum in the neighborhood of $10,000, was also forthcoming from the receipts.

It is understood that the aviators were to receive 55 per cent. of the gross receipts and it would seem that this was a fair proposition.

If the aviators will stop to consider that for two years wealthy men in nearly every large city in the United States have been going down in their pockets to supply guarantees and prizes for aviators, they will realize that such a condition cannot last indefinitely, especially when all these previous meets, with few exceptions, have entailed enormous losses to the management.

It would seem that while the aviators did not reap a golden harvest, they have learned that money can be made from meets run on a percentage basis. It is better to have meets under this arrangement than no meets at all.

In the October issue of "Fly," this very basis was suggested by Israel Ludlow in an article on aero clubs. In the December issue of "Fly," the idea was commented upon editorially and it is quite satisfying to learn that the experiment has been successfully demonstrated.

Los Angeles has set an example from which the rest of the cities of this country may well profit.

Aeronautical Laboratories

SOME days ago the writer had the pleasure of attending a lecture at the Franklin Institute, in Philadelphia, where Dr. Albert F. Zahm presented a paper on the need of an Aeronautical Laboratory in this country.

One of the obvious statements that he made was that while this country continues to advance in the practical development of aviation, the scientific end is almost entirely neglected.

Illustrations were projected on a screen showing how actual scientific work is carried on abroad in aeronautical laboratories. It was interesting to learn that the knowledge thus gained is disseminated among the aeroplane manufacturers and that it has proven a distinct advantage.

When we consider that Russia, Germany, Great Britain, Italy and France all have such institutions it would seem that it is high time that the United States secured some such establishment either through private subscription or with Government aid.

Dr. Zahm called attention to that fact that while we may appropriate the data and designs of scientists in foreign countries, we are doing nothing ourselves to aid the advancement and development of the science.

The Letter Box

New Yvrk City, N. Y., January 30, 1912.

To the Editor:

Permit me to take exception to your editorial addressed to the Aero Club of America in regards to the Coupe Internationale d'Aviation, where you advise the Aero Club, if money is to be spent in large sums in an effort to retain the Gordon Bennett Cup for this country, to spend it with American aeroplane builders exclusively.

The Gordon Bennett Cup was won for America by a foreign-made machine, with a foreign-made motor. It seems to me that when you ask the Aero Club not to spend any of its money with foreign manufacturers, you practically ask the Aero Club to kick its benefactor.

In the same issue you give a long list of the most important flights of the year 1911, and I see that out of the twelve selected flights all of them, including the Paris-Madrid flight, the Paris-Rome flight, the German circuit, the European circuit, the eleven-hour duration flight and the non-stop record of 460 miles, have been won by foreign machines equipped with foreign motors.

How in the face of this you recommend the Aero Club to do without the aid of foreign manufacturers is morc than I can understand.

If you hope to retain the Gordon Bennett Cup for America, advise the Aero Club to put all chances on its sidc.

I, for one, should like to see the cup remain in this country, but I would not advise the Aero Club "to put all its eggs in the same basket"; that is to say, to spend all of its money exclusivelp with American manufacturers.

I would advise the Aero Club of America to spend *some* of its money with American manufacturers, but I would strongly advise it to spend *some* of it to procure foreign motors of the best makes to be fitted to American-made aeroplanes and spend *some* to procure complete machines, all foreign built, motor and plane.

Then the American manufacturers will have a chance to win, but if thep fail America will not yet be out of the race. Thanks to the Aero Club and its wisdom, the cup could then be won for America by one of the foreign products.

Let this competition be true sport and let the Aero Club of America do its best to keep the Gordon Bennett Cup to this country, *no matter who wins.*

Yours truly,
Paul Lacroix,
President, Paul Lacroix Auto Co.

"Fly" Keeps Accurate Record

Richmond, Va., January 27, 1912.

Aero Publishing Co.,
Bulletin Building,
Philadelphia, Pa.

Gentlemen:—

Enclosed please find one ($1) dollar for a year's subscription to FLY Magazine

For six months I have purchased FLY from a news stand in this city. I think that FLY is the best magazine published on aviation that is published.

It keeps one posted on what the world is doing toward the science of aeronautics.

I would not trade one of the numbers of FLY for ten of any other.

Yours truly,
R. J. R.

Aero Publishing Co.,
Bulletin Building,
Philadelphia, Pa.

Gentlemen:

Enclosed please find one ($1) dollar for my renewal to Fly,

I have every issue of Fly since 1908, and I think it keeps a good, accurate record of what the different aviators are doing.

You can always count on me as one of your subscribers as long as Fly remains in the flying world.

Hoping that you will have the greatest success for 1912, I remain,

Yours very truly,
W. E. D.

Tabuteau Makes Record Flight

MAURICE TABUTEAU, flying at Pau, France, on January 25th, established new speed records for 200, 250 and 300 kilometres.

The machine used was a 50-h. p. Gnome-engined Morane-Saulnier monoplane. The course was one of ten kilometres.

Tabuteau started at 8.39 in the morning with fine weather, scarcely a breath of air stirring, and he covered the first 100 kilometres (62.137 miles) in 57 minutes, 26-4/5 seconds.

He continued for the 200-kilometre record and covered that distance (124.274 miles) in 114 minutes, 2-1/5 seconds.

Continuing, he flew the 300 kilometres (186.411 miles) in 171 minutes, 43-4/5 seconds.

These records were formerly held by aviators, Aubrun and Bournique.

In the early part of his flight Tabuteau was bothered by several Nieuport monoplanes which were flying over the course. On a slip of paper the aviator wrote the request that the aviators should give him more space. The paper was dropped to the ground and the aviator's instructions were carried out.

Tabuteau carried a trifle more than 165 pounds of petrol but did not use the entire supply.

In the total flight which was of three hours' duration, Tabuteau covered 310 kilometres, 281 metres.

Russia to Hold Aeronautic Show

THE "Russkoye Slovo," of Moscow, announces that an International Aeroplane and General Aviation Exhibition will be held in Moscow next April. The organizing committee is especially anxious that the French and British Aero Clubs should participate. The exhibition will remain open for six weeks. All the Russian aero clubs, both private and military, will take part, and there will be an interesting series of flights and evolutions in order to test the respective capabilities of the last and most up-to-date machines. The Moscow race-course will be utilized as an exhibitive aerodrome. Invitations to the French and British clubs will be forwarded

Aero Club Holds Annual Banquet at Sherry's

Progressive Platform Upheld by Members

LONG after the present editors of the now existing aeronautic magazines, are with their ancestors, some earnest persons may take the trouble to search out the early volumes of these journals for contemporary opinions on the Aero Club of America. From sundry editorials and other matter that might be discovered, the idea may be conceived that the members of the Aero Club of America, were of that root and branch of the ancient tribe from which, says Elbert Hubbard, came the progenitors of many of the members of the present State Legislatures, the United States Senate and the Philadelphia Club.

The purpose of this article is not one of genealogical research, but rather to put on record an attempt to comment impartially on that social function, which was given at Sherry's in New York on January 27, and which will go down in history as the Annual Banquet of the Aero Club of America.

The writer cannot say that the event came up to his expectations, and they were not unreasonable. However the dinner was not a failure although it fell below the standard set by the Aeronautical Society's banquet at the Hotel Astor in April, 1911.

While it might be the opinion of many that the objects of both organizations should be the same, the fact remains that they are not and that therefore any attempt to compare the two banquets on such a solitary conjecture would obviously be unfair.

Anyone who will take the trouble to read the platform of the Aero Club of America for 1912, (See FLY for January, page 20) will find that it is based on the belief that aviation is a sport.

Taken briefly the platform included the following planks:

To make the club representative of America aviation in fact as well as in name.

To assist in building up a strong public opinion in favor of aeroplanes for the Army and Navy.

To discourage commercialism.

To encourage the sounder aspects of the Sport.

To spread statistics and information.

Let us see if the dinner was productive of anything denoting progress along any of these lines; for certainly if the above statements were considered seriously the Aero Club of America would have taken the occasion of their annual banquet as a time to make public the range and results of their activities thus far.

To encourage the men of the United States Army and Navy on whom the country depend to establish its military supremacy in the air, must, it was announced that trophies will be given, the conditions of the awards to be made later.

Clarance H. Mackay will contribute the trophy for the Army, and in memory of his father who was once its head, Harry Payne Whitney will make a similar donation for the Navy.

In addition to these announcements was the speech of President Taft, who for the first time, made serious public statements regarding aviation. He endorsed the aeroplane, saying:

"I am convinced that the science to which you men are giving and losing your lives has advanced sufficiently to justify a larger appropriation by the government of the United States for testing and experimenting in what can be done in the air with the inventions we have already, as well as those to come. The Treasury of the United States may properly be used for the general welfare, and the cost of this science which is now being developed may best be defrayed out of the national treasury because the national treasury is best able to stand it.

"I am here because I believe in the future of aviation and I think that any encouragement that my presence may lend is quite in order."

While it is realized that President Taft's endorsement does not mean that all things will come to pass, it is quite reasonable to believe that if he is serious about a large appropriation for government aeroplanes, some part of it at least can be secured if he will make the effort to get it.

It would seem that the establishment of the Mackay and Whitney trophies, together with the clean cut endorsement of the aeroplane by the President of the United States, should assist somewhat in building up a strong public opinion in favor of aeroplanes for the Army and Navy.

The award of the Aero Club of America trophy for the most substantial achievement in the cause of aviation during each year was made by Henry Wise Wood to Glenn H. Curtiss for the successful development and thorough demonstration of the hydro-aeroplane.

The trophy is a group in bronze by Ernest Wise Keyser and represents the triumph of man over gravity. The donor is Robert J. Collier.

The Aero Club of America Commemorative Gold Medal was bestowed upon Calbraith Rodgers for his flight across the American Continent. Rodgers, who came from California for the occasion, responded briefly.

The inscription on the medal reads:

"Presented to Calbraith P. Rodgers for the first American transcontinental flight from Sheepshead Bay, L. I., September 17, 1911, to Long Beach, Cal., December 10, 1911."



Aero Club of America Trophy
Awarded Glenn H. Curtiss

Certainly these prizes will tend to encourage the sounder aspects of the sport and are quite in keeping with the progressive spirit of the club.

One of the souvenirs of the dinner was the handsomely prepared Aero Club Bulletin which is to be issued monthly by the club for the benefit of its members.

It is to be the official organ of the club as well as an aeronautical digest and puts a strong nail in that plank of the club platform which reads, "to spread statistics and information."

Regardless of what the banquet did not bring forth, three beneficial movements were emphasized and the results show that the Aero Club of America can accomplish what it sets out to do if it will only concentrate, instead of, as in the past, being led into devious byways by comparatively unimportant issues, losing sight for the moment of that which they set out to do.

Any person or set of persons who expects to conduct such a function as this recent banquet, and conclude it to the entire satisfaction of everyone, reckons without due consideration of human nature.

Being of the ordinary rural variety of human being that is fond of practicing on tin cans and catsup bottles, the writer desires to take a few short range shots at one or two targets that were alluringly displayed at the Speakers' table.

Claude Grahame-White would have fitted nicely into the program of the evening if he had not taken the trouble to decry exhibition flying. Under the existing circumstances a Gatling gun would be the only proper weapon to train on him. Not but what the writer and many others may believe that exhibition circuses have their bad points, but for Claude Grahame-White to pitchfork the game, was too much.

We will remember that this Englishman came to our shores in 1910 and 1911 with machines for exhibition flying and that conservative estimates place his profits at upwards of $100,000. In addition he gave about as little for the money as possible and besides this secured extravagant sums for his work. The result has been that now no matter how much flying an aviator is willing to do, he has to accept comparatively small sums because the people have already paid for what they did not get.

It would therefore seem that it was particularly unbecoming of Mr. Grahame-White to arise before some of his most liberal patrons and throw the harpoon into the very proposition that has made it possible for him to be dined and wined by persons that in this supposedly democratic country are designated as "Society."

"Upon what meat does this our Caesar feed that he has grown so great?" you ask?

"But, there the silver answer rang," the money made from exhibition flying.

The speech may have sounded alright to Mr. Grahame-White before he gave it, but afterwards the concensus of opinion was that he made almost as much of a hit as did Senator La Follette at the Publishers Banquet in the Bellevue-Stratford in Philadelphia the other night. It took Senator La Follette two hours and thirty minutes to convince the publishers that he wanted to join the "Down and Out Club." Claude Grahame-White's time was something like sixty minutes and fifty-nine seconds under this.

But what's the use of heating up the gun.

Just a little bird-shot for William J. Burns.

Detective Burns, the famous, unburdened himself of his knowledge of aviation in about three minutes, with about five statements of fact. He then proceeded to explain, how, with the aid of the dictograph, he had detected grafters in the various legislatures.

Just why a gathering of aeronautic enthusiasts should have had this inflicted upon them is not quite clear.

This excellent detective agency has been thoroughly advertised with practically the same kind of copy in magazines and newspapers, throughout the country, ever since the sentencing of the McNamaras.

M. Jusserand, the French Ambassador, impressed himself upon the guests by his sincere treatment of the subject of aviation and proved his right to a place at the Speaker's table by detailing the history of aeronautics from its beginning. To the Wright brothers he paid the just tribute of acknowledging them to be the first to make successful powered aeroplane flights.

M. Jusserand was not only interesting but one of the few brilliant speakers of the evening.

It was one of the regretable features of the banquet that Wilbur Wright who was placed at the right of the President of the United States, could not have been induced to have said a few words on this occasion. He could have told much of interest, without revealing secrets, but such is Wilbur of the "Silent Wrights."

General Allen, as the representative of the Army, expressed its thanks for the creation of the prize offered by Mr. Mackay, as announced by Mr. Collier in an address. Captain Chambers, for the Navy, made a similar speech of appreciation of the gift of Mr. Whitney.

Gen. Allen took occasion to say:

"Congress, through its own initiative, has recently officially recognized aviation by appropriating $125,000 for the current fiscal year, and it is believed and hoped that this beginning will go on with rapid strides commensurate with the importance of this great subject. The aeroplane stands today a recognized part of the conventional equipment of every army, and within the past few weeks it has demonstrated its usefulness in actual war in Tripoli.

"The War Department has at present seven aeroplanes; one in Manila, one at San Antonio, Texas, and five at the Signal Corps Winter Aviation School, at Augusta, Ga. Between now and the first day of June, at least eight or ten more machines will be purchased. We have at present in the army eight qualified aviators and four additional officers under instruction.

"Mr. President, I accept this trophy on behalf of the War Department and express through the President of the Aero Club of America to Mr. Mackay appreciation for the patriotism and generosity which have prompted so splendid a gift."

Viewed in the light of reason, it cannot be denied that the dinner was indicative of the progressive spirit of the Aero Club of America under its present officers. It would seem that there could have been procured speakers who would have made the dinner more aeronautical than it was. However this is something to remember for another year.

Men who are giving their lives to aviation were seated at the dinner among diplomatists, officers of the Army and Navy, business men, scientists and professional men, who have caught the spirit and enthusiasm of flight with the development of the aeroplane within the last few years. Robert J. Collier, president of the Aero Club, was the toastmaster of the occasion. At the guests' table with him sat:

President Taft, J. Jules Jusserand, French Ambassador; John Hays Tammond, Wilbur Wright, Rear Admiral Robert E. Peary, U. S. N.; Lieutenant General Nelson A. Miles, U. S. A.; Major General Leonard Wood, U. S. A.; Brigadier General James Allen, U. S. A.; Captain Washington I. Chambers, U. S. N.; Clarence H. Mackay, Charles Dana Gibson, Calbraith P. Rodgers, Claude Grahame-White, Professor Willis L. Moore, J. C. Montgomery, William Travers Jerome, Harold F. McCormick and James A. Blair, Jr.

Rules for Licensing Pilots

THE following rules governing applications for pilot licenses have been approved by the Executive Committee and must be strictly followed:

1. A person desiring a pilot license must apply in writing to the Secretary of the Aero Club of America. He must state in his letter the date and place of his birth, and enclose therein two unmounted photographs of himself about 2¼" x 2½", together with a fee of five dollars. In case the applicant is a naturalized citizen of the United States he must submit proof of naturalization.

2. On the receipt of an application the Secretary will forward it promptly to the Contest Committee, which, in case of an application for an aviation pilot license, will designate a representative to supervise the test prescribed by the International Aeronautical Federation, and will advise the representative of the name and location of the applicant and, through the Secretary, advise the applicant of the appointment of the representative to take the test.

3. In case the application is for a spherical balloon or for a dirigible balloon pilot license the applicant will be fully advised by the Contest Committee.

4. All applications for aviation pilot licenses must reach the Secretary a reasonable time in advance of the date that the applicant may expect to take the required test.

5. No telegraphic applications for licenses will be considered.

Duration Record For Six Persons

MOLLA, flying at Douzy, France, on January 27th, established a new record for time in the air with five passengers.

Molla ascended with five other men, in a military aeroplane. The average weight of each person was 151 pounds.

The total time in the air was 1 hour and 6 minutes. They were forced to descend on account of the cold.

How to Build a Successful Sling-Shot Glider

An Air Runner That Will Easily Cover 500 Feet

By Percy Pierce

THE model aeroplane sport is progressing to such an extent that most boys all over the country either want to make a flying model or own one. Some boys, to be sure, have not the money to invest in a made-up model, so they procure what is known as "parts," from which they make the model at less cost and have all the fun and experience in doing so.

Now, here is a little wonder, which will outdo, so far as flying qualities, almost any model its size. The cost is exceedingly small, having only the spruce planes, bamboo main bar and rubber, from which the little "airflyer" receives its propelling power.

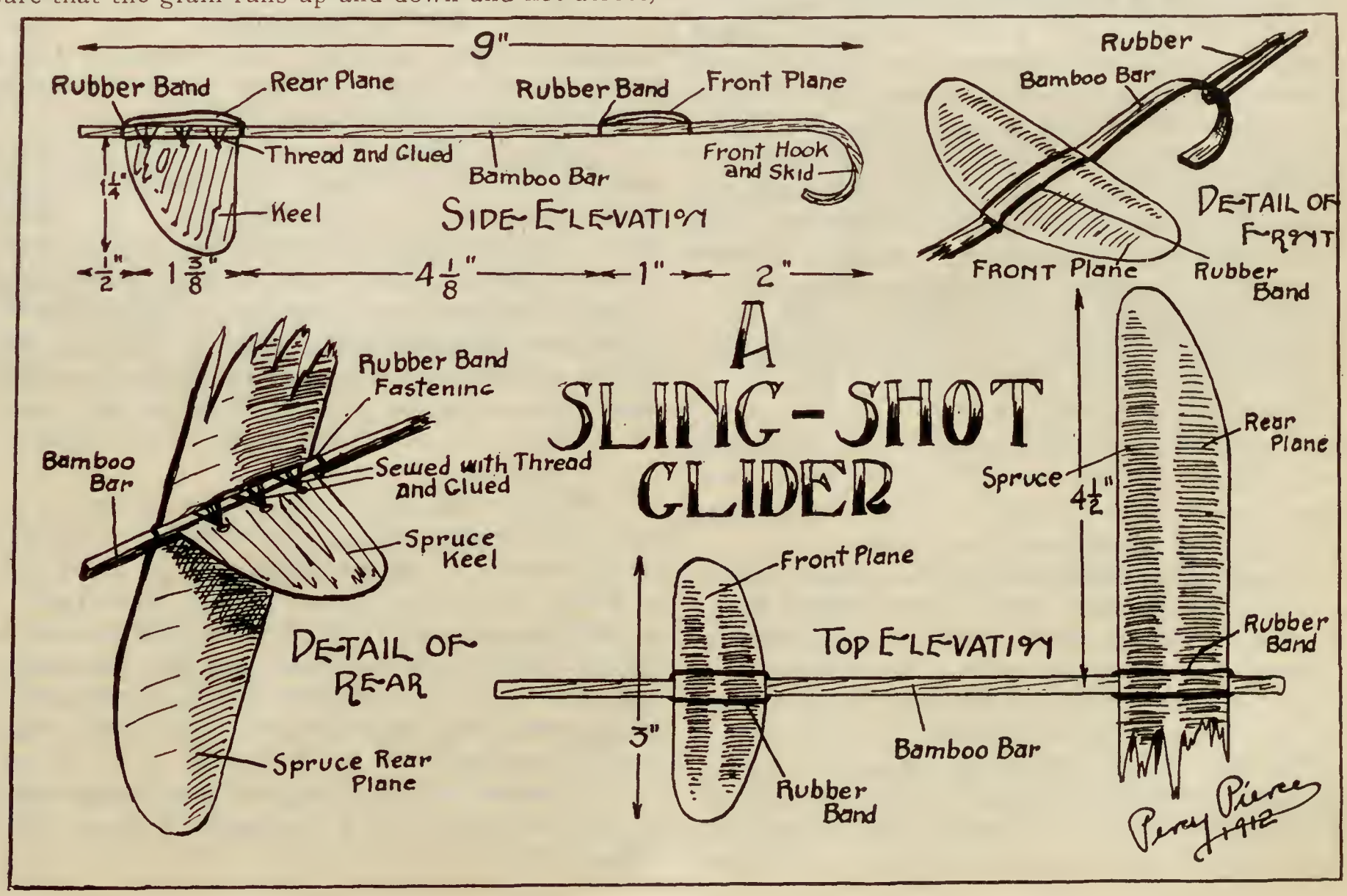
Main Bar. Use a piece of bamboo about 10 or 11 inches long by ¼ inch wide and ⅛ inch thick. If there is an old porch screen around, the bamboo from that makes excellent main bars for gliders of this sort. One end is heated over a flame, so as to soften it, and it is then bent into a turned-down hook, over which the rubber for launching, is to be looped, as shown in detail of front.

Keel. This is made of thin spruce 1¼ inches wide by 1⅜ inches wide. One side is rounded off at the shown in the side elevation and detail of rear. Be sure that the grain runs up and down and not across, as it would be easily broken off otherwise. Three tiny holes are punched or bored through the keel at the top, equal distance apart, by means of which it is fastened underneath the bamboo main bar, by sewing over and over around that bar and through the holes, so that the rear edge of the keel will be ½ inch from the end. After this, the joint is covered with glue, which tends to strengthen it and makes a fine, firm finish.

Rear Plane. This is made from a piece of spruce the same thickness as that of the keel, 9 inches long by 1⅜ inche swide. One side is rounded off at the ends as shown. The plane is then held over a flame and bent fore and aft so as to have a concave surface on the underside as shown in the side elevation. This tends to give more lift and stability to the glider. The center of the plane is found and then with the convex side up, fasten it on the bamboo bar, just over the keel by wrapping several times with a rubber band, over the plane and under the bamboo bar.

Front Plane. This plane is cut,curved and fastened to the bamboo bar in the same way as the large or

Continued, 2nd column, page 24



Robinson Interests Europe With Hydro-aeroplane

Louis Paulhan Flies Curtiss Machine at Nice



Hugh Robinson

HUGH ROBINSON, who has been in a series of exhibitions with the latest type of the Curtiss hydroaeroplane at Nice, France, met with a slight accident while flying at that place on February 10. The accident was due to the great number of motor boats which gathered about the place where he wanted to land.

After flying for some time, Robinson attempted to alight where the water was the smoothest, as there was a heavy sea running, with a very strong wind, and great care was necessary. The machine maneuvered over the place for several minutes seeking a clear space for alighting where he would most likely avoid the fleet of small craft. Just as he was about to alight on the water there was a rush of boats to the spot he had selected and he quickly saw that it would be impossible for him to avoid striking some of them unless he should dive directly down into the water. This he quickly decided to do and brought his machine down at a very steep angle, which drove the nose of his boat straight into the water. He was thrown into the sea, but was immediately picked up by a motor boat. The planes of the hydroaeroplane were smashed, but the motor was not damaged. The hydroaeroplane did not sink, but it will require several days to repair it.

With Louis Paulhan as a passenger, Robinson made a flight from the Mediterranean on February 9, of forty minutes' duration, in demonstration of the Navy type of Curtiss hydroplane. Several French Navy officers witnessed the flight and expressed themselves as surprised at the ease with which the machine arose from and alighted upon the water.

Subsequent to the flight of Robinson with Paulhan as a passenger, the latter made a fifteen-minute flight, operating the machine alone. He handled it with ease, and astonished the spectators with his maneuvers in the air and on the water after so brief an acquaintance with the Curtiss system of control.

The first successful demonstration of a hydroaeroplane in Europe was made February 6th, on the Mediterranean, near Nice, France, by Robinson, using the latest type of Curtiss hydroaeroplane. The machine which Robinson used was the one recently sold by the Curtiss Company to Louis Paulhan, the famous French aviator and aeroplane builder. Mr. Robinson has cabled the Curtiss office in New York City, regarding his flights as follows:

"I made the first flight today in demonstrating the hydro purchased by Paulhan, at Juan les Pins, near Nice. The demonstration was a perfect success, and in the course of a thirty-minute flight I alighted upon the water at least a dozen times and arose with perfect ease after each landing. The water was rough, many waves being as high as four feet. In spite of this, however, the alighting and starting was made without difficulty or special incident. The flights attracted a great crowd and the enthusiasm displayed was remarkable. I have flown in many American cities, but nowhere did the enthusiasm of the people equal that of the crowds which witnessed the demonstration of the hydro here. Further demonstrations will be made at Nice, Monte Carlo and elsewhere. Great interest displayed in the machine."

The Sling-shot Glider

Continued from page 23

rear plane, except that it is 3 inches long by 1 inch wide and the front edge is fastened about 2 inches from the hooked end of the bar.

Flying the Glider. The ends of a piece of rubber about 3/32 of an inch square and 18 inches long are tied together, so as to form a large loop. One end of this is slipped up over the front hook of the glider (bent to hold the rubber) and the other end is held between the thumb and forefinger of the left hand. With the right hand hold the glider by the keel; pull it back and let go, at the same time droping your left hand down out of the way. If the glider dives heat the bamboo bar just behind the small front plane to bend it up a little.

After practice, flights of every description can be made. By bending the rear edge of the keel, the glider can be made to go either to the right or to the left as desired, but caution must be taken **not to bend** it so much as to snap it off. If you desire to make a "loop-the-loop," bend the bamboo bar up a little more in front, to give it more elevation. The glider can also be regulated by moving the front or small plane backward or forward.

The writer, has made a flight of over 700 feet with a glider like this with a duration of fully one-half minute.

Questions and Answers

A Department for All Aero Students

Conducted by A. Roe Bugg

VOTH, TEXAS.

Dear Sir:

Through your paper on page of "Questions and Answers," I would appreciate your giving me, as well as the rest of your readers who are interested, the following information:

1st. How long does the Hearst offer of $50,000 for a coast to coast flight stand, and what are the conditions of the offer?

2nd. What other prizes are still open for aviators in the United States?

3rd. If a person should build an aeroplane, say of the Curtis type, could he be prevented from flying for his own amusement by those who control the Wright patents?

4th. Could he be prevented from making exhibition flights for money?

W. C. K.

1. The Hearst prize offer was withdrawn October 10th, 1911.

2. I know of no other large prizes that are offered for flights at the present time.

3 and 4. This is a matter to be adjudicated by the United States Courts. There are aviators flying machines that infringe on either the Curtiss or Wright patents, but thus far there has been no sweeping effort made to stop them.

BILLINGS, MONT.

Dear Sir:

Did Hubert Latham cross the English Channel before Bleriot?

On what date was it crossed for the first time by the aeroplane?

L. A. K.

So far as I can learn, Latham has never flown across the English Channel in an aeroplane.

The channel was first crossed in an aeroplane by Louis Bleriot, on Sunday morning, July 25th, 1909. He began his voyage from Baraques, France, at 4.35 A. M., and landed near Dover, England, shortly after 5 A. M.

JACKSON, N. H.

Dear Sir:

Would you kindly recommend a good book to read that introduces the subject of aerial navigation?

S. P. O.

Aerial Navigation, by Dr. Zahm, is a good popular introduction to the subject. Vehicles of the Air, by Victor Lougheed, is another popular work that treats the subject very thoroughly; this is also true of the Art of Aviation, by R. W. A. Brewer. A full and most complete list will be found by consulting the list of books advertised by the "Fly" Magazine Book Department which is found in the advertising section.

NEW ORLEANS, LA.

Dear Sir:

What was the distance of the famous "Circuit de l'Est"?

What were the stages and by whom was the race won?

F. A. J.

The accredited distance of the "Circuit de l'est," was 497 miles.

The stages were: Issy-les-Moulineaux to Troyes, Troyes to Nancy, Nancy to Charleville, Charleville to Douai to Amiens, Amiens to Issy-les-Moulineaux.

The contest was won by Alfred LeBlanc in a Bleriot monoplane.

SEATTLE, WASH.

Dear Sir:

Can you tell me what the supporting surface is of the Howard Wright biplane?

What is the weight of the machine and the speed of miles per hour?

H. U. T.

The supporting surface of the 1911 model was 516 square feet.

The machine weighed with the pilot and fuel, 1420 pounds and flew at a speed of about 38 miles per hour.

SEATTLE, WASH.

Dear Sir:

How can I become an aviator?

Is there any school in this country where instruction in aviation is given?

Is a man's weight a hindrance to him in becoming an expert aviator?

G. S.

1 and 2. You can become an aviator at any one of the standard aviation schools. See the advertising pages of "Fly" for names and location of schools.

3. Clifford Harmon and Louis Mitchell are both heavy-weights but both learned to fly nicely. Weight is not a serious drawback.

Dear Sir:

1. Is it lawful to sell blue-print plans of biplane gliders?

2. Is it lawful for a minor to assume a name and pretend to be a company?

Kindly favor me by answering the above questions.

H. E. A.

1. It is lawful to sell these plans provided they are not patented or copyrighted by anyone else.

2. It is probable that you would get into difficulties if you did this. If you secured money under the pretense of being a company you could be held criminally liable.

New Books for the Aeronautical Library

Additional Volumes on the Science of Aviation

(*See* FLY MAGAZINE *Book Department in the advertising section for the latest and best books on aeronautics.*)

The Encyclopedia of Sport, by the Earl of Suffolk and Berkshire. A compilation on every branch of sport with 2,000 illustrations. Complete in four large octavo volumes.

One of the striking features of this up-to-date encyclopedia, which is the only one that includes the whole body of outdoor sports, is the splendid treatment accorded the subject of "Aeronautics," edited by Lord Montague, of Beaulieu.

The treatment of the sport of aeronautics includes more than forty illustrations of aeroplanes and dirigibles in flight as well a large number of pages of carefully written matter concerning the sport itself.

Among the subjects treated are: The Problems of Flight, The Types of Machines, Types of Dirigibles Balloons, Uses and Applications of Airships, and Future Developments.

Aside from the treatment of the subject of Aeronautics, the volumes contain a most careful compilation of records, statistics and laws of every game and sport, and all the subjects are treated by experts.

It is alive by reason of the descriptive writing by men whose names are familiar to everyone as leaders in the realm of sports. While there have been many volumes produced on plans somewhat similar to this, their scope has been meagre compared to the comprehensive, elaborate and authoritative work represented in this Encyclopedia.

This work has been brought absolutely up-to-date in every way and all changes in rules and method of play have been carefully noted and discussed.

The articles dealing with the different subjects have each been written by an approved expert.

If the sportsman makes up his mind to an expedition after some particular kind of game all he needs to do is too to look in the index and turn to the article in the Encyclopedia. There he will find a complete description of the animal, its habitat, its mode of life; he will be told just where to go, and how best to set about attaining his sport, what equipment he will need, the best time of year to go and all necessary information clearly and briefly set forth.

The Encyclopedia is a work *by* Sportsmen *for* Sportsmen and anything in the line of sports can be quickly located in these comprehensive volumes.

The range covered is a wide one and the American can find expert treatment of his favorite sport. Among the many subjects that appeal to Americans and among those treated are: Polo, Golf, Tennis, Baseball, Football, Lacrosse, Hockey, Hunting, Fishing, Yachting, Motoring, Fencing, Boxing and Aeroplaning. Track, Field and all other sports are thoroughly described.

Nothing like so comprehensive a set of books has ever been prepared for sportsmen.

Model Flying Machines, by W. G. Aston, 2nd edition. A book dealing with their resign and construction.

There are many persons interested in aeronautics who have ideas that they believe to be valuable to the development of the science. They are however unable to secure funds for the carrying out of their experiments on a large scale. Some are not discouraged by this fact but take up their work on a small scale and carry on experiments with the aid of models.

Professor Samuel Pierpont Langley's experiments with models were the basis for much of the valuable data that he was able to compile and leave for those who were to follow him. In fact nearly all successful aeroplane builders began their work with models.

It is therefore very necessary that there should be published authoritative works on model building, and

"Model Flying Machines," is unquestionably an one of England's foremost model builders is certainly entitled to be called authoritative.

Chapter VII comprises ten model aeroplane designs which Mr. Aston states have all been built and tested by him. There are also chapters on model dirigibles and helicopters that command consideration and thought.

The designing of models as well as the general principles of building them, are thoroughly discussed, as is the building of all the different model parts.

"Modely Flying Machines," is unquestionably an authoritative bookon the subject of models and the fact that the author is a well-known model expert adds to the reliability of the information contained therein.

Chemie der Gase, von Dr. Friedrich Brahmer, is another late German publication from the house of F. B. Auffarth, Frankfurt-A.-M., Germany.

The contents of book include the following subjects: Von den drei Aggregatzustanden, Die wichtigsten Chemie, Die wichtigsten Gasesetze, Uber die Diffusion der Gase, Spezifisches Gewicht, Dichte, Spezifisches Volum, Auftrieb von Gasen, Sauren, Basen and Salze, Der Sauerstoff, Der Stickstoff, Die Luft, Kohlensaure und Kohlenoxyd, Der Wassergas, Der Wasserstoff, Das Leuchtgas, Das Leightgas von v. Oechelhauser, Gasflaschen und Tabellen.

TRADE TOPICS



Jesse Seligman of the Moisant International Aviators, who expects to fly across the Isthmus of Panama

Aviation School for Philadelphia

There has lately been established in Philadelphia the Society of Aeronautic Engineers, who have opened a school of construction and flying. Philadelphia has long desired a well-known and established school of aviation to be located within its environments, and it would seem that this wish is gratified by the Society of Aeronautic Engineers who have opened their factory at Twelfth and Dickinson streets in that city.

Francis J. C. Ferris, formerly at the head of the Aeronautic School of Engineers of New York City, has been secured to take charge of the construction and flying departments, while Henry J. Winter, formerly of the same company, will assist in the work.

The active management of the school is in the hands of Jay Henry Keeler, who for ten years has had charge of the Broad Street Conservatory of Music, and his activity has been largely responsible for placing the school where it now stands.

During the past few years Mr. Keeler has become deeply interested in the science of aviation, and he believes that he can best further the interests of aeronautics by conducting a school.

After investigating the various aeronautic schools of the country he entered into negotiation with the Aeronautic School of Engineers of New York, and has brought it with its complete manufacturing equipment and faculty to Philadelphia, giving that city its first established school of aviation.

The student upon entering the school is given a course of preliminary instruction that introduces him in a general way into the nature of the work he is about to undertake. The pupil is told not only what to do, but how to do it and the reason for doing it.

The course instructs the pupil in metal working, woodworking, laminating and shaping, wire-working and the art of placing the cloth covering on the planes.

There is also a motor and propeller course, which will familiarize the student with the various types of motors and practical information regarding the requirements of propellers and their construction.

The most interesting part of the instruction at the school is in the flying course, which is under the direction of Mr. Ferris.

The machine used will be a "Curtiss-type," and the first lesson will consist of instruction regarding the mechanism that controls the engine and the aeroplane. This will be followed by actual flying lessons. During the first lessons the machine will merely be run over the ground until the student becomes acquainted with the controls. Then the speed will be increased sufficiently to take the machine just off the ground, and is continued until the pupil acquires sufficient confidence to rise higher.

It is understood that only those who produce proof that they are in sound physical condition will be allowed to take the flying course.

After the student has finished the flying course he will be furnished with a machine free of charge at the flying grounds of the society, where he can try for his pilot's license.

The society is beginning to book engagements for flights for the coming season and pupils in the school will be used to fill them as soon as they become proficient.

Goodyear Exhibits Aero Accessories

To the Goodyear Tire & Rubber Company, Akron, Ohio, belongs credit for the most complete line of aeroplane fabric and tires shown at this year's automobile shows, and at the Annex this week the aeroplane tire and fabric exhibit of the company is attracting much attention. The Goodyear Company was first among American tire manufacturers to reckon with the aeroplane as a coming factor in transportation and made preparations for its arrival. The Goodyear Tire & Rubber Company's aeroplane tire exhibit includes all the popular sizes. An aero-

plane tire is smaller and fatter than its cousin, the motorcycle tire, and the Goodyear kind, like the Goodyear motorcycle, is made like a small automobile tire, instead of as a development of the bicycle tire. Aeroplane tires must take terrific strains at times and they must be so made that wrenches will not loosen them from the rims. Lives of aviators are quite likely to depend on the sturdiness of the tires on the wheels. The Goodyear Company has given a good deal of attention to these details, and Goodyear aeroplane tires are used by many of the most famous aviators of the United States.

E. J. Willis Shows Model Aeroplanes

The E. J. Willis Company, of 85 Chambers street and 67 Reade street, New York City, have recently installed in their store at considerable expense the finest collection of aeroplane models that we have ever seen. They are built to scale, and no minor detail which would be necessary to a full-size machine equipped ready to fly has been neglected in these small models. They include the Wright Cross-Country type, Bleriot type machine, equipped with two fifty H. P. Gnome motors coupled together; Santos Dumont Demoiselle, Farman type; machine with seating accommodation for 7 passengers, Antoinette machine, motor driven kites, and one of unique design equipped with pontoons; also a twelve foot model of the Zeppelin 23 dirigible balloon equipped with electric lighting outfit and two small motors, wireless equipment; in fact, correct and full equipment in miniature such as is used on the full-size machine. It would certainly be worth while if all interested in aeronautics should find time to visit the E. J. Willis Company's show rooms at 85 Chambers street.

Curtiss Warns Infringers

Glenn H. Curtiss has notified manufacturers of "Curtiss-type" aeroplanes and users of machines embodying his devices, warning them against using the shoulder yoke.

Mr. Curtiss, personally, has patents pending in the office at Washington, one of which covers a method of equalizing pressure on ailerons to avoid any possible turning movement of the entire machine about a vertical axis, due to unequal resistance on either side of the machine from the use of ailerons, while other applications are concerned with the shoulder-control and hydro-aeroplanes.

Mr. Curtiss was advised by his attorney, Emerson R. Newall, to advise alleged infringers in order that it may not be considered that he acquiesces in the use by the public of the devices patented by him.

Lacroix has Morane Agency

Paul Lacroix, president of the well-known automobile firm of that name, announces that he is the exclusive agent in this country for the famous Borel-Morane monoplane, the machine with which Pierre Vedrines established his reputation.

Mr. Lacroix is also agent for the Anzani, Gnome and Renault aviation motors. They are all well known makes of foreign motors and the present world's record for duration was made with a machine equipped with a Renault motor. The world's record for distance covered in a single flight was recently made by Gobe in a Nieuport monoplane equipped with a Gnome engine.

Griffith gets Aviation Field

It is intended to open on March 3rd, a new aeronautical center, near Los Angeles. On January 6th a lease was signed by Van M. Griffith, son of the donor of the great park to the city, to nearly 200 acres of river bottom land, surrounded by Griffith Park.

The following business concerns will establish enterprises at the park: Glenn L. Martin, aeroplane factory and school; Gage Aviation School, aeroplane factory and school; Harry S. Dosh, aeroplane factory; Earl T. Hanna, propeller factory and aeronautical supplies; Sky Pilot Motor Company, aeronautical motors.

Elbridge Engines for Hydro-aeroplanes

In developing the 1912 models of Elbridge Aero Engines special attention has been paid to the six-cylinder types, which are already attaining success in hydro-aeroplanes and other heavy types of machines. One of the most serious difficulties in operating the hydro-aeroplane has been that of starting the engine, especially if it was stopped for any reason when at a distance from land. This has been overcome in the new Elbridge "Sixes" by adding to the regular equipment what is said to be one of the most successful self-starting devices tried out in America. The device is said to add less than ten pounds to the weight of the engine. In conjunction with the self-starter dual ignition, combining high-tension magneto and battery system, will be used.

The 40-60 four-cylinder "Featherweight" and "Aero-Special" types will remain, however, the Elbridge Engine Company's leaders, as these, the company believes, represent the ideal power plant for the biplanes and monoplanes of light weight in most general use. Probably no engine made in America has developed so many prominent fliers as the Elbridge "Featherweight": Frisbie, Evans, Walsh, Weldon Cooke, Castellane, Paine, and many others made the flights that brought them into prominence with Elbridge engines.

For practice flights the company reports renewed interest in the three-cylinder, 30-45, "Featherweight" model. Some excellent flights have been made with these small engines, and many prizes were won with them in California by C. F. Walsh and Glenn L. Martin, as amateurs.

"Nomie" Fills Want

Nomie Engine Company, Ltd., of Cicero, Ill., introduces a carbonic rotary motor for propelling Model Aeroplanes, which develops a ¼ H. P. at a normal speed of 2,500 R. P. M. and the weight of which is only 16 ounces with full equipment.

Starting from the premise that clock work spring motors, that vapor engines and rubber strands have all proven unsatisfactory, the little Nome motor with its revolving cylinders, and hollow crank shaft, resembling in miniature the characteristics of the famous Gnome French motor, has been developed to meet the demands of those who desire a light, efficient, reliable and inexpensive power unit.

The Nomie motor has been tried and proven, and is heartily approved by all model makers who have seen it in operation. Imagine a power plant that only weighs 16 ounces and develops a full ¼ H. P. This motor was given a thorough test by a eminent engineer, formerly of Armour Institute, and tests have proven it to be the lightest and most powerful engine for its size in the world.

The motor operates on carbonic acid gas. which is so commonly used by vendors of soda water, a steel tube is furnished with the engine together with a regulating valve. This tube can be refilled at a cost not to exceed 10 cents, and one charge is sufficient to operate the engine at full speed and power for 96 seconds.

Goodyear Balloons Built Complete. Goodyear Rubberized Aeroplane Fabric Used Exclusively by Veteran Aviators

You can now secure Goodyear Service in *Balloons*. We build them *complete*—spherical or dirigible—and make quick deliveries. We make a full line of silk or rubberized cotton balloon fabrics. These fabrics, as well as our balloon *construction* is the result of scientific research in England, France, Germany. We guarantee Goodyear Balloons equal to *any* balloon purchasable in America or abroad.

Goodyear Rubberized Aeroplane Fabric

This weather proof fabric, as well as other Goodyear Aeroplane accessories has played an important part in every big flight of national interest.

Rodgers used Goodyear Rubberized Aeroplane Fabric in his sensational flight across the continent.

GOODYEAR

RUBBERIZED AEROPLANE FABRICS AND ACCESSORIES

So did Ovington who flew for, and won the $10,000 prize offered by the Boston Globe in the Tri-State Aeroplane race.

So did Atwood who flew from Boston to Washington via New York and from St. Louis to New York; and who is now experimenting with the hydro-aeroplane equipped with Goodyear Rubberized Fabric.

So does Fowler, now making an Ocean to Ocean flight from West to East.

So did Walter Brookins, who made the world's record for accurate landing at Canton.

And so did *Uncle Sam* when he flew across the Mexican Border covering 116 miles in 127 minutes in the first U. S. Army Maneuver ever undertaken in an aeroplane.

Goodyear equipment is used exclusively by these veteran aviators because they know it is safest.

Most Durable—Water and Weather Proof

Goodyear Rubberized Aeroplane Fabric does away with the stretching and shrinking usual to the common coated fabric when it becomes *wet* or encounters a change of temperature.

Heat, cold or dampness has no effect on Goodyear Fabric. The tension is always the same. The fabric, instead of being covered by a coat of varnish or paraffine is thoroughly impregnated with rubber, then is *properly cured*. Moisture can't get to the threads. Every thread protected. So the fabric is *rot-proof*. *It lasts*. For its weight, the stoutest most durable fabric made.

TIRES

We make a complete line of single and double tube Aeroplane Tires with or without leather treads.

Our detachable Aeroplane Tire is built like the No-Rim-Cut Auto Tire. Most durable. Clings to rim in a grip that will stand the severest wrench on landing without giving way.

Single Tube Tires have valve protected with metal. *Valve can't tear loose.*

Our 20x4 Clincher tires most popular for rigid machines. Kind used on Curtiss Aeroplanes. Extensive Rubber Beads. Our aeroplane tires built in sizes to fit any and all American and foreign made machines.

SPRINGS

We also carry a full line of springs and are sole manufacturers in America of the Bleriot Type Rubber Shock Absorber—the only successful spring for Monoplanes.

If you are going to buy or make Aeroplanes, we have a vital message for you. Send for it to-night.

THE GOODYEAR TIRE & RUBBER CO., Main Office and Factory, Akron, Ohio

Branches and Agencies in 103 Principal Cities

Notes of the Burgess Schools

The Florida work is progressing finely. Brookins is operating an independent school, at Palm Beach, with a Burgess machine. Page is flying a land machine, at Daytona, on the Beach, and has, at present, as pupils, Patrick Grant, of Boston; John F. Gray, of Ormond, and H. L. Hattemer, of Montgomery, Ala. Webster opens a school, at Ormond, with a hydro-aeroplane in about a week. There is considerable passenger carrying being done at each of the three places.

Rubel Sells Machine to Dayton Man

"Carrying coals to Newcastle" applies with double emphasis to a deal recently closed by R. O. Rubel, Jr., who is said to have sold a passenger-carrying machine to a man in Dayton, O., where the Wright Brothers' plant is located and which city was made famous by reason of being the first in the world to produce aeroplanes.

The act of "carrying coals" in this instance, however, seems to have been productive. W. J. Richardson is the purchaser, and he lives in Dayton, Ohio.

Fowler Ends Flight

ROBERT G. FOWLER, who has been flying from ocean-to-ocean, officially ended his flight on February 8, when he landed at Moncrief Park, near Jacksonville, Florida at 4.45 P. M.

Fowler left San Francisco for New York on a prize race September 11th, 1911, went as far as Emigrant Gap, September 24th, turned back on account of storms; started again for the Atlantic Ocean from Los Angeles, October 21st; made 1,700 miles in eighteen flying days to Houston, Tex.; arrived at New Orleans, December 31st; let New Orleans, January 4th; arrived at Brantley, Ala., January 20th, flying only five days of that time, being delayed by storms.

Among the first to greet Fowler on landing was Frank A. Gotch, world's champion wrestler.

A Few Hangars

of various sizes at proportionate prices are now for rent at

The Aerodrome of the Aero Club of New York,

Nassau Boulevard, Long Island, N. Y.

For terms apply to the Superintendent on the Aviation Field.

Those engaging and occupying hangars now will have preference over all others when the rush begins for accommodations for the season of 1912, when the daily gate receipts will be shared with the aviators.

Aviation Jottings

Aviator George Sandt has been making flights recently at Erie, Pa.

Clifton O. Hadley has been making flights in the vicinity of Tarrytown, N. Y. He has been racing trains, automobiles and ice-boats, and has beaten them all.

George W. Beatty gave New York some thrills several days ago when he flew from his flying grounds at Nassau Boulevard, Long Island, into Central Park, in New York City. Beatty left his machine in the Park over night and the following day flew it back again to the aerodrome at Nassau Boulevard.

Lieut. Ellyson, Lieut. Tower, Lieut. John Rodgers and Ensign Victor Herbster have recently arrived at the Naval aviation school, at San Diego, Cal. In addition it is announced that three more officers will be detailed for instruction at that place.

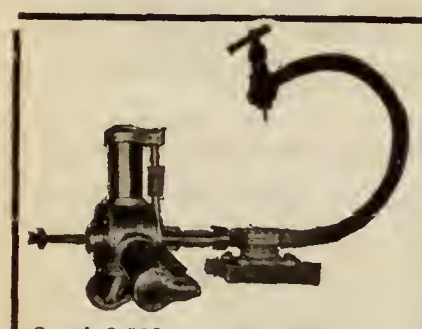
Charles K. Hamilton, the aviator, accompanied by a business manager and mechanician, has sailed for Galveston, Texas. Hamilton expects to give exhibition flights in the South and Southwest and will remain until Spring.

Four more officers of the regular army are to be detailed to the Signal Corps for duty as aviators. The officers who are to be selected must furnish a surgeon's certificate as to their fitness for aerial work and must volunteer for that branch of the Signal Corps service. They must also be bachelors. It is said that there are forty officers who are eager for the assignment so that there will be no difficulty in securing the men. A bill has been introduced in Congress to double the pay of all officers assigned to aviation work.

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Nomie Engine Co., (Ltd.) Aviation Field, Cicero, Ill.

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BIRD MODEL.—The most natural, perfect and scientific Flying-Machine Model in the world (patented), which shows the secrets in birds flight. Will fly from 20 to 200 feet without power. Most interesting for enthusiasts in aviation. Everybody experimenting in Flying-Machines cannot be without it. Send 25 cents for complete model. Agents wanted. Idea is worth the money. ERNST EBBINGHAUS, 316 East 93rd Street, New York, N. Y.

DO YOU WISH an extremely light weight young man to assist you in aeronautical work? Great enthusiast. Address Box 20, Fly Magazine, Philadelphia, Pa.

FOR SALE—Typewritten manuscript, accounts of all fatal aeronautic accidents from very earliest to 1906. Also sixteen back numbers of "Fly," 1908-09-10. Kabrich, Box 637, Kansas City, Mo.

FOR SALE—48 H. P. Adams Motor, Gas Tank, Radiator and Magneto. Made about twenty long successful flights by Aviator Ellis. Better than new. Guaranteed. $600. Headless Aeroplane Co., 465 Ave. D, Rochester, N. Y.

FOR SALE.—$450.00. Elbridge engine, 4 cyl., 40-60 H. P. Complete, ready to fly. with propeller, radiator, gasoline tank and all connections. Address, American Hydro Aeroplane Co., 1420 Race Street, Phila., Pa.

FOR SALE—An opportunity for three men to become associated with a legitimate aviation school, paying reasonable profits. Instruction on biplanes given by a licensed pilot of the Aero Club of France. Address, Louis Fleche, Berlin, N. J.

FOR SALE—The "Floater" tailless kite. Goes higher, lifts more, never dips. Put together or taken apart in two minutes. Send for circular. Matthiessen, 37 N. 57th street, Philadelphia, Pa.

FOR SALE—Complete sets of castings for building the Bleriot monoplane. Lynch Brothers, 61 Wick Place, aeronautic engineers, Youngstown, Ohio.

MONOPLANE AND BIPLANE for sale, without engine. 911 North Broad street, Philadelphia, Pa.

MANUFACTURING COMPANY wants men for aviators. $100 required. B. L. Gates, 227 Englewood Ave., Chicago, Illinois.

WANTED—Very neat refined young colored man wishes position; any kind that gives chances as aviator or mechanic. Eight years a chauffeur. References unexcelled. One hundred and thirty pounds. Particulars address Griffith Gunther, 349 W. 59th St., New York City.

YOUNG MAN, 21 years old, requires financial assistance to attend training school. Will make good terms on receipts from flights. Address, C. Hale, 198 Juneau Ave., Milwaukee, Wis.

FLY! THAT'S THE THING!
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Patent Attorney
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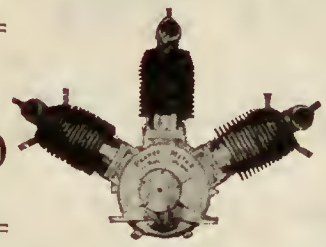
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3 MODELS, 3 PRICES AND 3 WEIGHTS

$350.00 125 lbs.
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$1000.00 175 lbs.
Complete Complete



Not an experiment but a well built, practical, up-to-the-minute Aero Motor of 3 and 6 Cylinders A. C. Circular for red stamp now ready. 30-35 H.P., 35-40 H.P., 75-80 H.P. Quick delivery.

Parker Motor Sales Co. ST. PAUL, MINN. U. S. A.

BOYS BUILD *The* LONG DISTANCE RACER



Plans and directions for building and flying the famous
"CECIL PEOLI"
Champion Racer
(controlled by Ideal Aeroplane and Supply Co.)

which holds the championship record of 1691 ft.—25cts.
Plans for building Wright Biplane 3 ft. flying model 25c
Plan of Bleriot Monoplane 3 ft. flying model . . 15c.

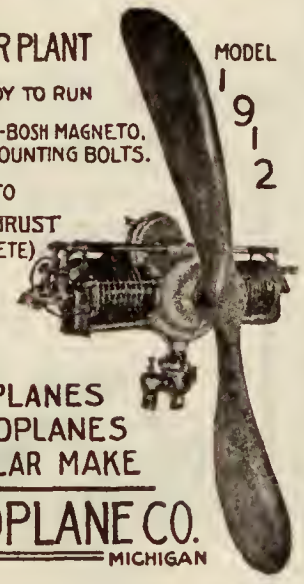
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Get our 1912, up-to-the-minute Catalog. Most complete published—contains everything new—also official rules for contests—5c brings it. Worth $1.00.

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84B West Broadway, New York City

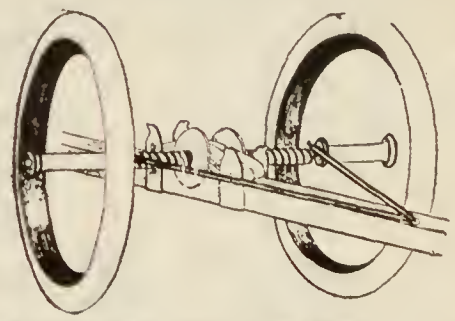
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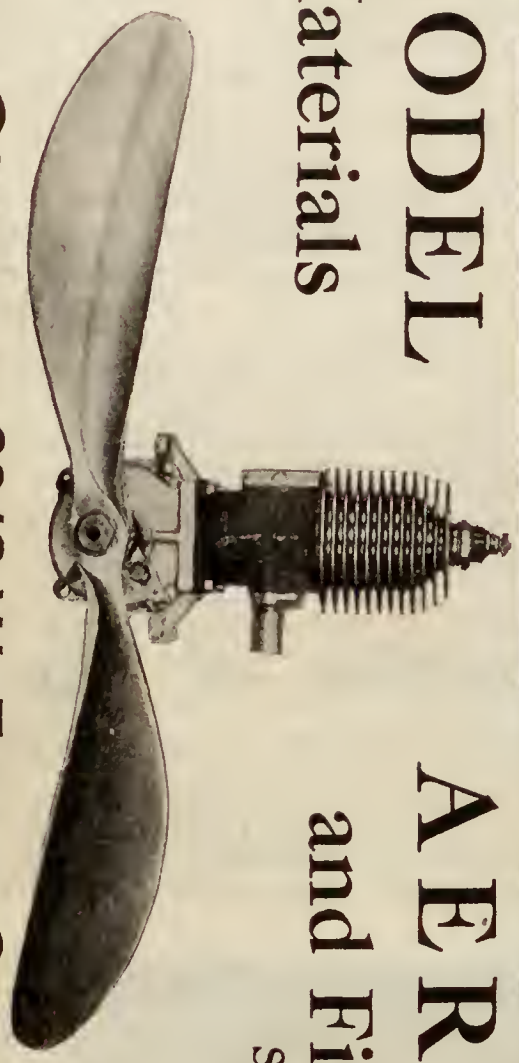
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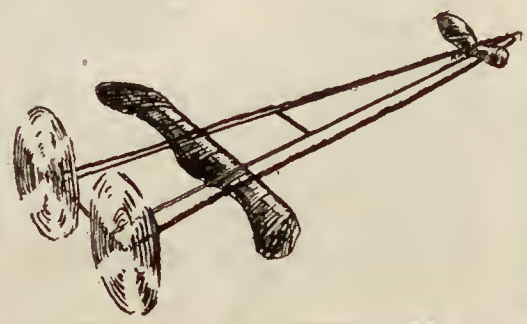
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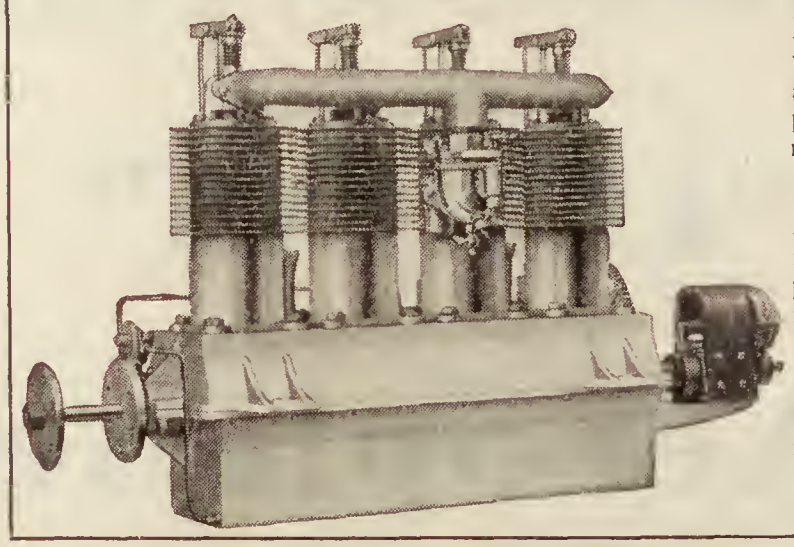
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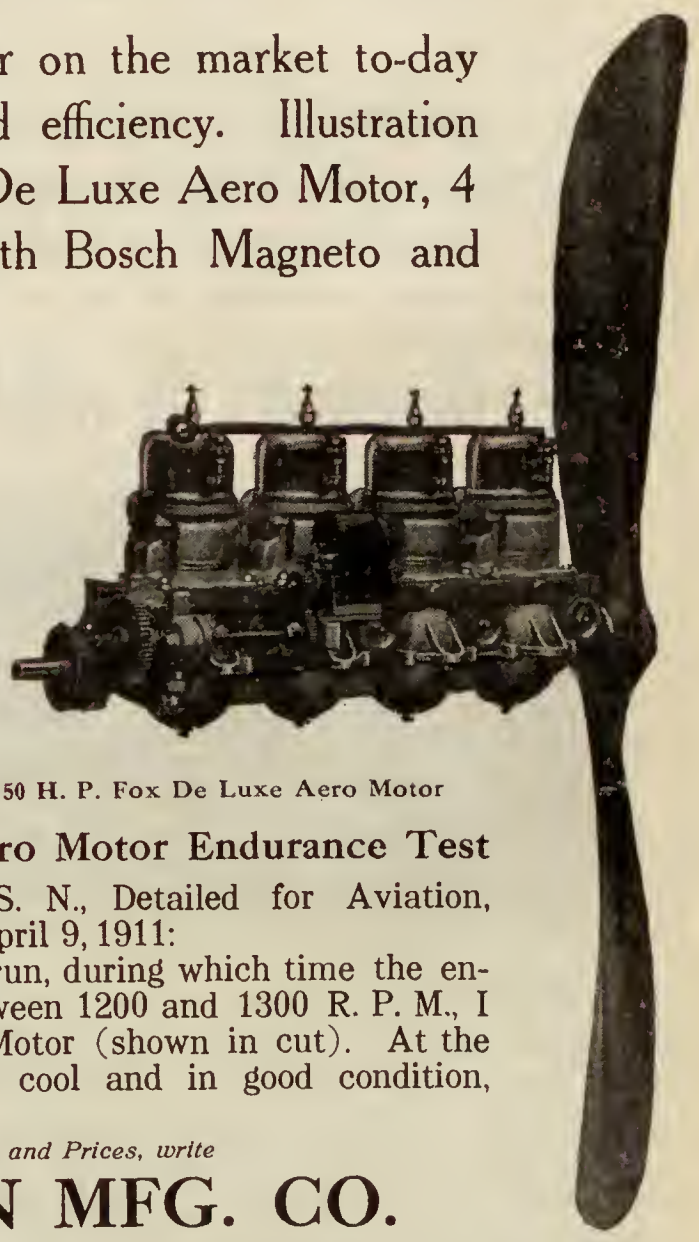
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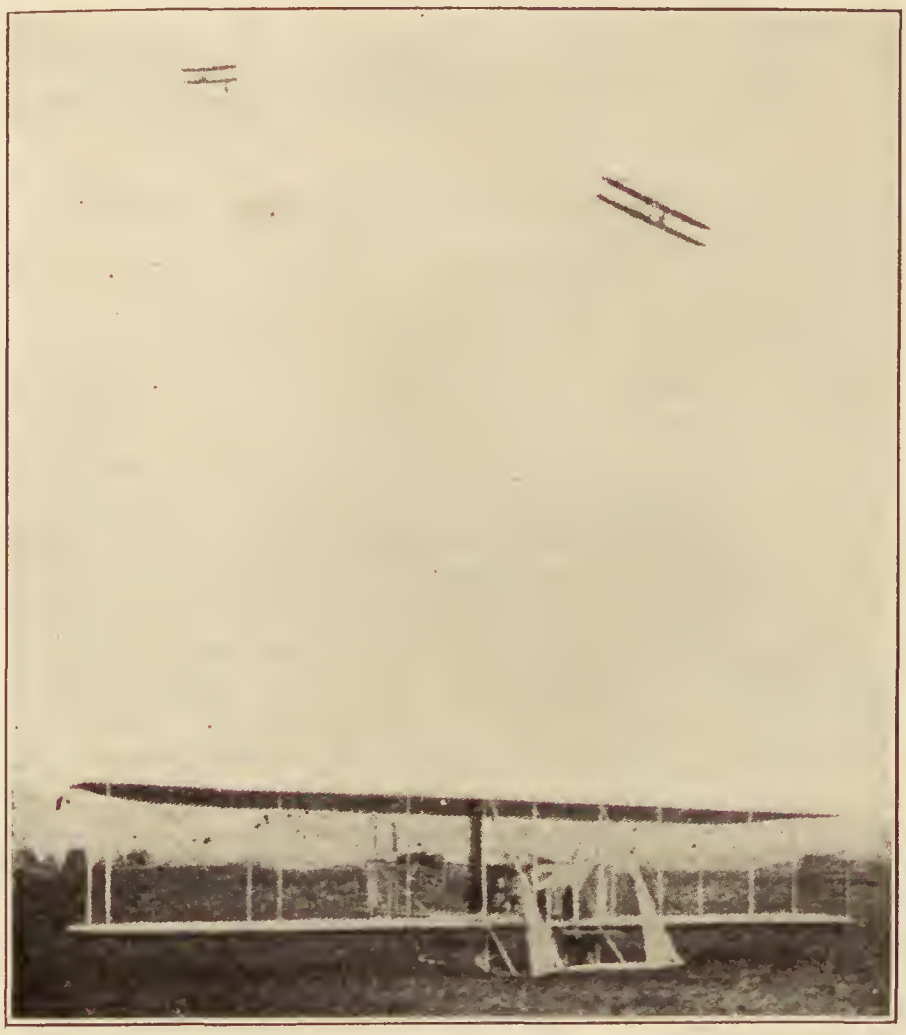
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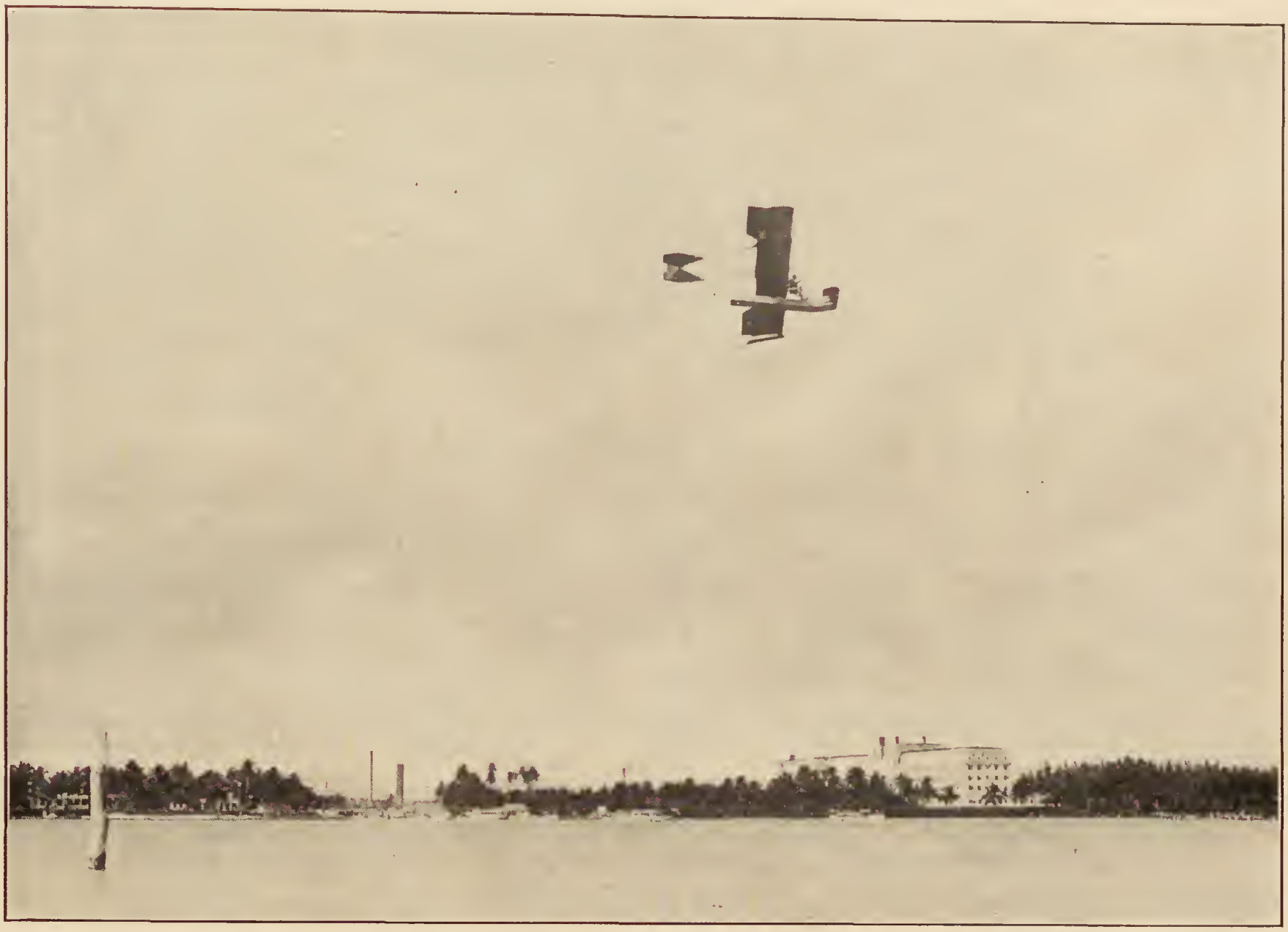
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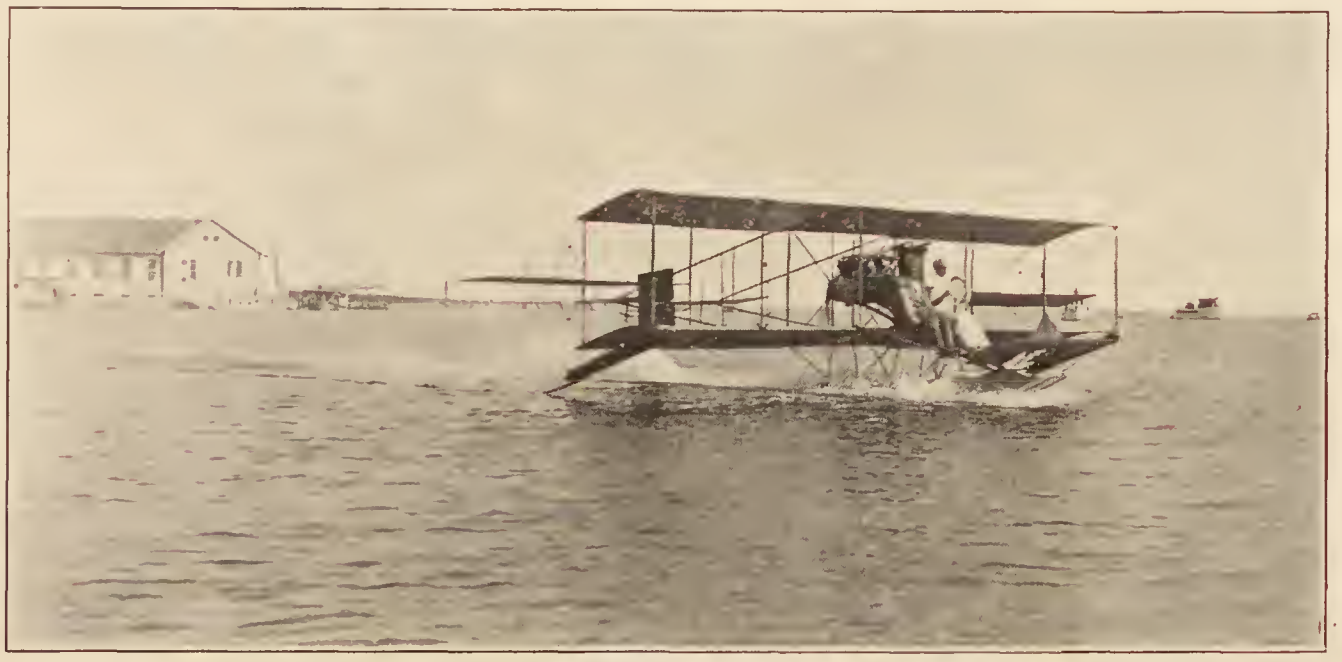
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Orders should be accompanied by a post office money order for the amount specified, and should be addressed to Book Department, Fly Magazine, Bulletin Building., Philadelphia, Pa. Money orders should be made payable to Aero Publishing Company.

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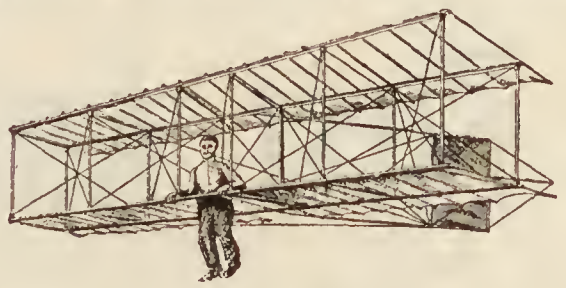
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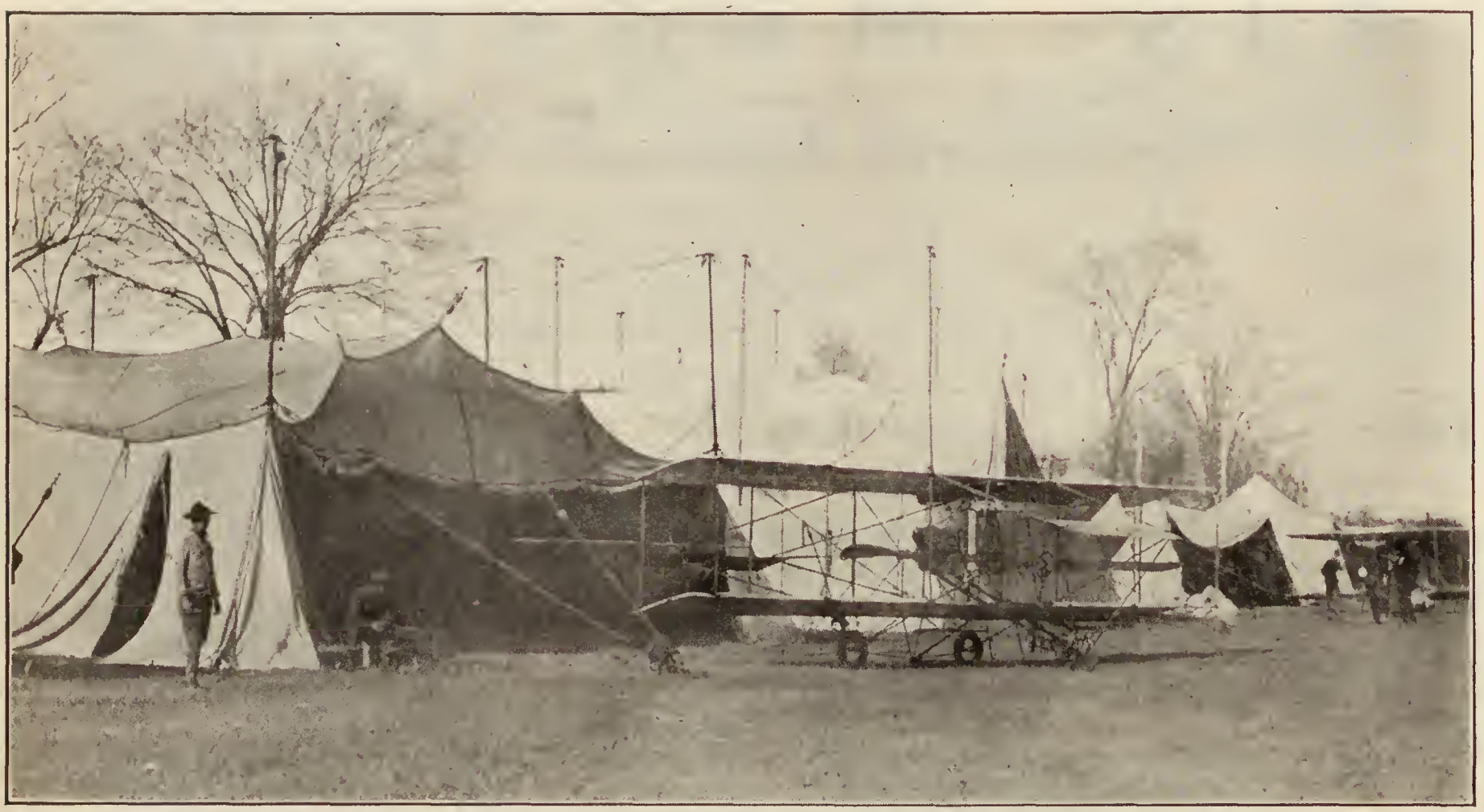
The National Aeronautic Monthly

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At the Signal Corps Aviation School



The Aeroplane Sheds and Aeroplanes at the Signal Corps School

AUGUSTA, GA., March 15, 1912.

THE officers and men at the Signal Corps Aviation School are very much discouraged over the exceedingly bad weather that they have passed through since their arrival in Augusta, and although the quarters and surroundings at this place are much better than those located at College Park, Md., the men are looking forward, with much pleasure, to their return to College Park, where they are due to report and go into summer quarters on April 1, 1912.

Second Lieut. Frank M. Kennedy, on February 19th, while making a landing after a short flight, came to earth on a steep angle and with the motor on full, striking the earth with the front wheel of the landing gear, which made the "Baby Curtiss" rebound with such force that it turned a complete somersault, throwing the aviator many feet into the air and landing him under the wreckage of the machine.

He was picked up bruised and bleeding and a nearby automobile was pressed into service and the injured aviator was rushed to the City Hospital at this place, where it was reported that his injuries were not serious, but very painful. Lieut. Kennedy was discharged from the hospital on March the 2nd and is now on leave of absence for the purpose of visiting his home in Hinckly, Ill., where it is expected that Lieut. and Mrs. Kennedy will spend the latter part of March and the entire month of April.

Second Lieut. Leighton W. Hazelhurst, Jr., of the Seventeenth Infantry, reported for duty with the school on March 2nd, where he is now receiving instructions on the standard Wright machine, with Second Lieuts. Arnold and Milling as instructors, and although his progress up until the present time has been rather slow, it is expected that he will be able to fly the machine before the removal of the school to College Park, Md.

There has been much rain and high wind this month, and as a result there has not been a great deal of flying and the spare time is occupied in packing the things that are not really necessary in the every day workings of the school.

Capt. Paul W. Beck, the Curtiss operator, on February 10th, while making a flight around the aviation field, had his motor go dead, caused by a poor grade of gasoline. While making a volplane to the earth he crashed through the top of a thirty foot pine tree, which luckily righted the machine, but caused him to make a hard landing. The entire under structure of the machine was wrecked, but the aviator escaped unhurt.

Under the new War Department order, which states that an officer cannot be absent from his regiment on special duty for a period of more than four years, Capt. Beck will be compelled to report to his regiment on May the 1st. It is hoped that a special ruling will be obtained that will make it possible for him to remain with the school.

Should Capt. Beck be relieved from duty with the

school, Second Lieut. Kennedy will be appointed chief instructor of the Curtiss pupils.

Lieut. Col. Winder, of the Ohio State Militia, reported for duty with the school on March the 13th, and will receive instructions on the Wright machine, with Lieut. Arnold as instructor.

A head telephone sending and receiving set for the purpose of operator and passenger conversing with one another while in the air has been tried and is reported a success. It is expected that this means of communication between operator and passenger will soon become popular.

Four new men, who enlisted into the service under the heading of "Aviators," arrived at the school from Fort Wood, N. Y. H., on the 19th inst., at which place they were receiving instructions in aviation, by volplaning dishes into the sink. They came here expecting to do great things and they are now very much disappointed and cannot understand why they must learn to be mechanicans when they enlisted as aviators.

The new Curtiss dual control was received at the school on the 12th inst., and is now set up—awaiting the arrival of Aviator Walsh, of the Curtiss flyers—to give it its test and turn it over to the Government.

The mechanicans of the detachment gave their farewell snipe hunting party on the evening of March the 14th, with recruit Bernard S. Levey as the victim.

The recruit was given a plain burlap bag and a lantern, and was instructed to place the lantern in front of the bag, hold the mouth of the bag open and blow the whistle every minute or two, in order to attract the snipe. He led the men to believe that he had been snipe hunting before and needed no instructions as to what to do. Amid a rain shower the party started for a creek about three miles distant for the purpose of catching the snipe.

Levey was given the bag, whistle and lantern, placed close to the edge of the creek, to await the arrival of the snipe, which the other men were going to chase down the creek. In the meantime the men returned to the school to await the arrival of recruit Levey, but after 12 P. M. gave up hopes of his returning before morning and retired. Levey was noticed at the breakfast table the next morning, but refused to offer any information as to what he had done with the snipe. The party was voted a great success and treated accordingly.

Al A. Avis.

War Department Has Test For Pilots

THE War Department is going to buy more areoplanes. Also the War Department wants more aviators to fly them.

Military aviators must be commissioned officers of the regular Army or organized militia.

Commissioned officers to be qualified to undertake such work must be physically and mentally able to fly aeroplanes. They must also be unmarried and intentions of taking unto themselves a "better half," must be wholly and entirely absent so long as they remain a part of what France calls the "fourth arm," or the aerial military service.

There being a dearth of commissioned officers in the regular army and in addition there being a decided lack of those who can overcome the requirement in regard to marriage, it would seem that there is a good opportunity for commissioned officers of the organized militia who are not above the rank of First Lieutenant to obtain a "high" position in the regular Army.

If the occasion should arise that the United States should need an aerial fleet for service, it is to be feared that everything but aviators could be secured. This fact should lead to the immediate training of a reasonable number of men at once for this service.

Of course there are a sufficient number of professional aviators in this country to provide operators for military aeroplanes, but there are not a very large number that can tell at a high altitude whether the body of troops below are infantry or cavalry; whether they are artillery or ration vans. Accurate observations like these cannot be acquired in a day or a week. They are the result of a course of study and training.

The military aeroplane and the military observer are without doubt two great factors in military maneuvers, and warfare in the future is to be more dependent upon their work that we perhaps dream of.

The qualifications for military aviators follow:

Military aviators must be commissioned officers of the regular army or organized militia.

All officers who qualify as military aviators according to the conditions enumerated below will receive certificates from the Secretary of War covering such qualifications and will be carried on the Army Register as "Military Aviators," with the date of qualification in each case.

To obtain such certificate the candidate must fulfill the following requirements:

1. Attain an altitude of at least 2500 feet, recorded by a suitable barograph.

2. Make a cross-country flight of at least twenty miles (ten miles going and ten miles returning) at a minimum height of 1000 feet.

3. Make a flight of at least five minutes duration, with the wind blowing at the rate of at least fifteen miles per hour (indicated by an anemometer).

4. Carry a passenger to a height of at least 500 feet and on

landing come to rest within 150 feet of a previously designated point, the engine being completely cut off prior to touching the ground. The combined weight of passenger and pilot must be at least 250 pounds.

5. Execute a volplane from an altitude of at least 500 feet with the engine completely cut off, and cause the aeroplane to come to rest within 300 feet of a previously designated point on the ground.

6. Make a military reconnaissance flight of at least twenty miles for the purpose of observing and bringing back information concerning features of the ground or other matter which the candidate is instructed to report upon. This flight must be made at an average altitude of 1500 feet.

The tests for "Military Aviators" will be conducted under the direction of the Chief Signal Officer of the Army, at such times and places and before such boards of officers, as may be convenient. The mass of officers who qualify and the date of such qualification will be reported to the Adjutant General of the Army.

The Wrights' Case in Germany

March 14, 1912.

FLY MAGAZINE,
Bulletin Bldg.,
Philadelphia, Pa.

Gentlemen:

We are in receipt of information from Germany regarding the recent action of the German Patent Office nullifying the main claim of the Wright German Patent. A letter from our attorney says:

> "After the discussion of all of these points the Division took one hour and a half to deliberate, and then pronounced as their judgment that claim 1 should be annulled on the disclosure contained in "L'Aeronaut," page 103, passage 5, in connection with "Automotor," of February 15, 1902, page 197, column 1, lines 2 to 4. The full grounds were not verbally pronounced. It was said that they would be given in writing."

The citation from "L'Aeronaut" is from a report of an address by Mr. Chanute before the Aero Club of France, in April, 1903, describing the experiments of the Wright Brothers at Kitty Hawk, N. C., in 1902. The citation from the "Automotor" is a synopsis of the address of Mr. Wilbur Wright before the Western Society of Engineers in 1901, describing the experiments at Kitty Hawk in 1901. The statement of Mr. Chanute, which is cited as a disclosure of the Wright invention, was as follows:

> "To assure transverse equilibrium the operator works two cords, which warp the right and left wings and at the same time adjust the vertical rear rudder."

Under the laws of Germany and France, a disclosure of an invention by the inventors, or by any one else who has knowledge of it, before the application for a patent is filed, is sufficient to render the patent void. The disclosure must be sufficient to enable any one to understand how to build and use the invention.

The German Patent Office has taken the extreme position that these few words were sufficient to teach any one how to build and operate a flying machine in 1903, and that they canceled the right of the inventors to any property in their invention in Germany. The Wright Brothers do not believe that this action of the Patent Office is based on a proper interpretation of the law, and will take an appeal to a higher tribunal.

The address of Mr. Chanute, on which the German decision turned, was delivered about two weeks after the date of the French application, and, therefore, could not be used against the Wrights in the French trial, which they won. The German application was not filed until after the date of this address by Mr. Chanute.

Very truly yours,

WRIGHT BROTHERS.

In America

(Editorial from "Popular Mechanic," March Issue.)

"Seemingly very much of a slap at the Wright claims to a monopoly of the air in the United States was the recent granting of a United States patent to Glenn Curtiss, very completely covering his 'lateral balancing rudders'—the type of separated ailerons long used on the Curtiss machines.

"Since the Wrights have strongly contended that such alierons constitute 'lateral marginal portions' within the meaning of their patent claims, and therefore constitute an infringement upon their construction, the fact that the Patent Office has seen fit to grant most significant, and apparently goes a long way to uphold the views of those who regard the Wright patent as of little value."

Hydro-Aeroplanes for Philadelphia

BEFORE the summer is past it is quite probable that there will be at least two hydro-aeroplanes stationed at the League Island Navy Yard at Philadelphia, for the instruction and training of officers and men of the Advanced Naval Base School.

It is believed that the introduction into this work of the hydro-aeroplane will make it one of the most powerful organizations of the naval arm.

Lieutenant A. A. Cunningham, of Atlanta, Georgia, now stationed at League Island, will be the first officer detailed for instruction in the operation of an aeroplane. He will probably be sent to the Navy School at Annapolis about May 1st.

With two hydro-aeroplanes as a nucleus League Island will have such an opportunity to grow into the most important naval aviation center in the East.

The Effects of Gyroscopic Action

Gyroscopy Enemy of Stability

By E. Adrian Von Muffling

TAKE a small gyroscope top, such as can be bought at any toy shop for a few cents. Suspend it from a suitable frame, so as to keep its axis horizontal, and set it spinning. (Fig. 1.) It will remain motionless. But hang a small weight to one end of the axis, and you will observe that the entire frame will not lose its equilibrium as might be expected, but that it will begin to revolve about its support, *the axis remaining horizontal.*

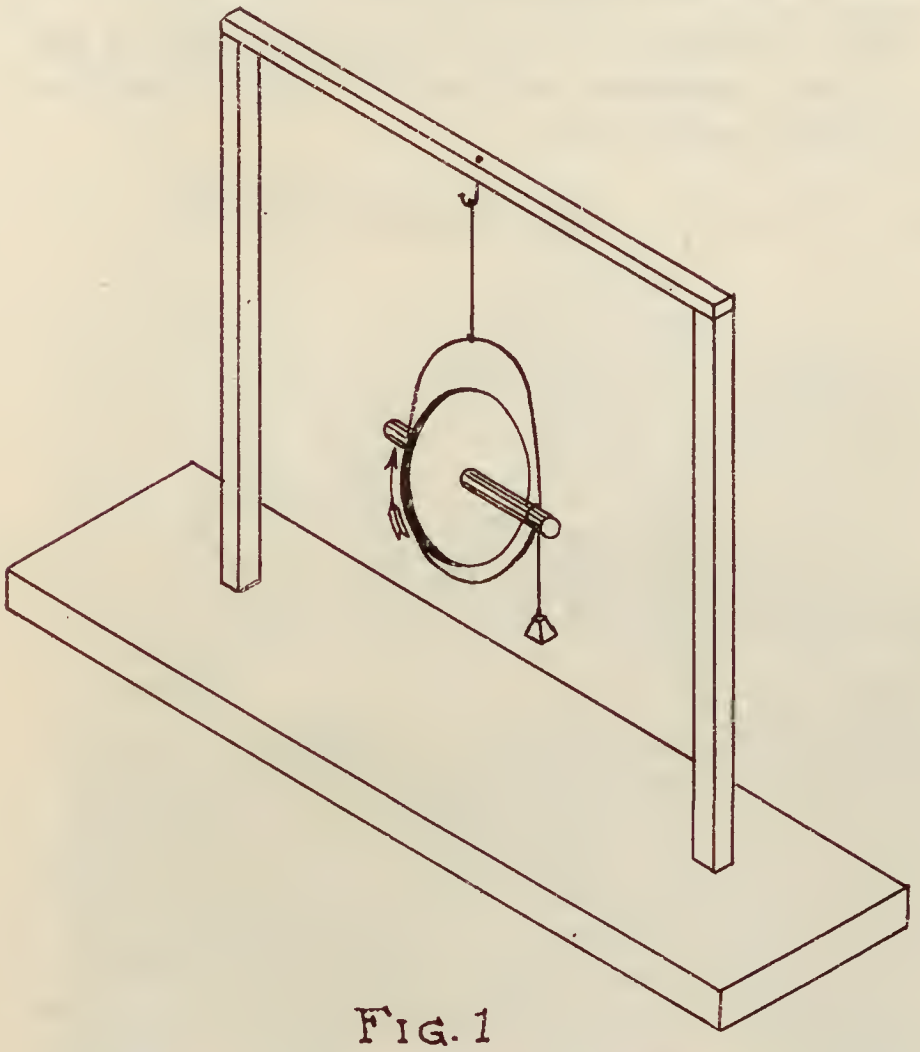


FIG. 1

When observed by unthinking persons the last fact is to be held responsible for most of the general misconception of the action of gyroscopes, especially in connection with aeroplanes. Many are the men that believe gyroscopy to be the panacea that is going to eliminate that bugbear of designers, lack of stability. When a famous rotary motor first became popular it was often stated that the gyroscopic action due to the revolving mass would tend to keep the plane on an even keel, automatically. As a matter of fact, however, it does everything to upset it. If gyroscopy is going to be a factor in stabilizing aeroplanes, it is the opinion of the writer that it will be of use merely in pointing out something that we must get rid of. In a freely suspended body, if gyroscopy is present, there can be no stability, and once we succeed in eliminating it altogether we shall have made a big step towards the solution of the problem.

Gyroscopic action does *not* prevent a force from changing the direction of a body, as is widely supposed; *it merely changes the direction in which that force acts.*

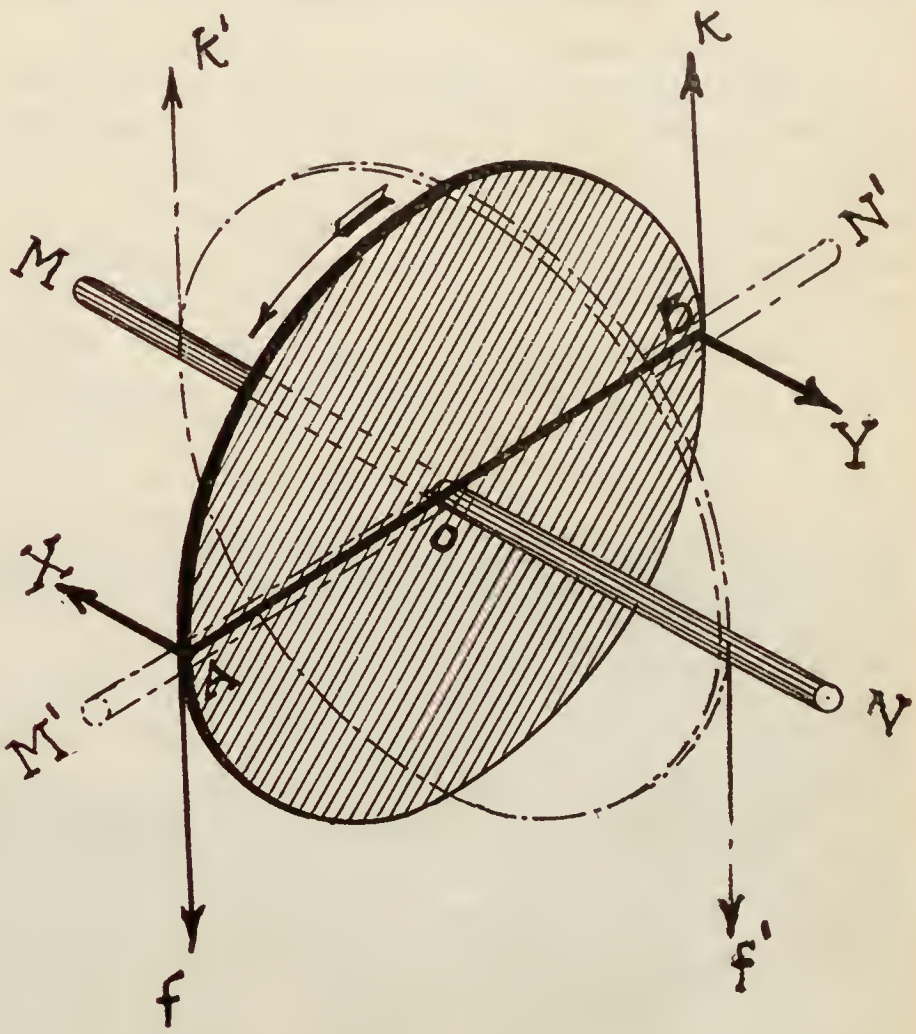


FIG. 2

Consider Fig. 2. Let A, C, B, D, represent a disk (say a fly-wheel) rotating at high velocity about its axis, M, N. This forms a gyroscope, although its action will not be apparent until we attempt to change the inclination of the axis, as by turning one end upward and bringing it in the position, M′, N′. Now observe what has happened.

The disk has been rotated about its diameter A, B; just prior to the change the particles of matter at A were traveling at great velocity in the tangential direction indicated by f; just after the change those particles are traveling in the direction f′, the angle fAf′ being equal to the angle NON′. The inertia of the particles at A, however, has the tendency to keep them traveling in their original direction f, and the resistance to the change of direction *takes the form of a new force, X,* acting on the disk at A perpendicularly to AB. Similarly, if we con-

sider the action at the point B we find that inertia, opposing the change from k to k′ creates the force Y, acting also perpendicularly to AB but in the opposite direction. In other words, what have we found? That the forces X & Y *form a couple about the center O,* which tends to revolve the structure about a new axis CD. The action of this couple, called COUPLE OF PRECESSION can be expressed by the following theorem:

If to a body, rotating about a central axis, a second motion of rotation be imparted about an axis perpendicular to the first, a third motion of rotation will ensue, about an axis which is perpendicular to the other two.

This is precisely what has taken place in the above described experiment. The path taken by the weighted end of the axis becomes, however, more complex from the fact that the force of gravity does not cease to act; the actual result, therefore, will be one that is the resultant of this force and the couple. It will be readily understood that the couple thus generated, acting as it does against the inertia at other points along the periphery may create couples in other directions. The resulting action is of such complexity that it may safely be asserted that it is impossible to calculate just what path a point on the axis will follow, *provided that the gyroscope be entirely unsupported.* And it is this very latter condition which is realized only in a flying aeroplane.

A rotary motor, or the fly-wheel of a stationary motor mounted upon an aeroplane in flight presents a condition which is impossible to reproduce in a laboratory; that is the condition of a body entirely free from direct support; and free to move in a three dimensional direction.

It is apparent that the gyrations resulting from the action of the couple may be stopped by making the mounting of the gyroscope not movable in that particular direction; or, as is the case in various monorail-road systems, the gyrations may even be made to act in a direction opposite to that of the original force tending to upset the balance of the system. (This is done by means of levers and gears and explains why the side of a monorail car upon which a weight has been placed will raise instead of lower itself.) In either case, however, there must be an immovable point for the forces to react against; a point which can be used as fulcrum, and which is not itself susceptible to motion. In a laboratory experiment such a point is always present in the form of the fastening or suspension of the frame surrounding the gyroscope, while in a car it will be found at the contact point of the wheels to the rail. In either case displacement in at least one direction will be found impossible.

To give a still better idea of how the couple will affect the balance of an aeroplane I shall quote one example which doubtlessly has come under the personal observation of many of my readers. It is a fact that is well known to all that have driven automobiles that such vehicles when going at high speed will allow of much easier steering in one direction than in the other. This phenomenon (which has puzzled many) is due again to our old friend (or should I say, enemy?) the couple of precession. Reference to Fig. 3 will explain the action that takes place. In this case the couple that is generated in the fly-wheel will transmit itself through the frame of the car and tend to *decrease* the pressure on the front wheels. The weight taken off here is added to that borne by the rear wheels; thus the front wheels do not "hold the road" very well and steering is therefore easier. In steering the other way, however, the couple is reversed; now the front wheels will hold better than the rear ones, and not only steering becomes difficult, but the loss of pressure on the drivers may cause the car to skid on a perfectly dry road. A very vivid and convincing demonstration of which fact came near costing the writer his neck near Atlantic City last fall.

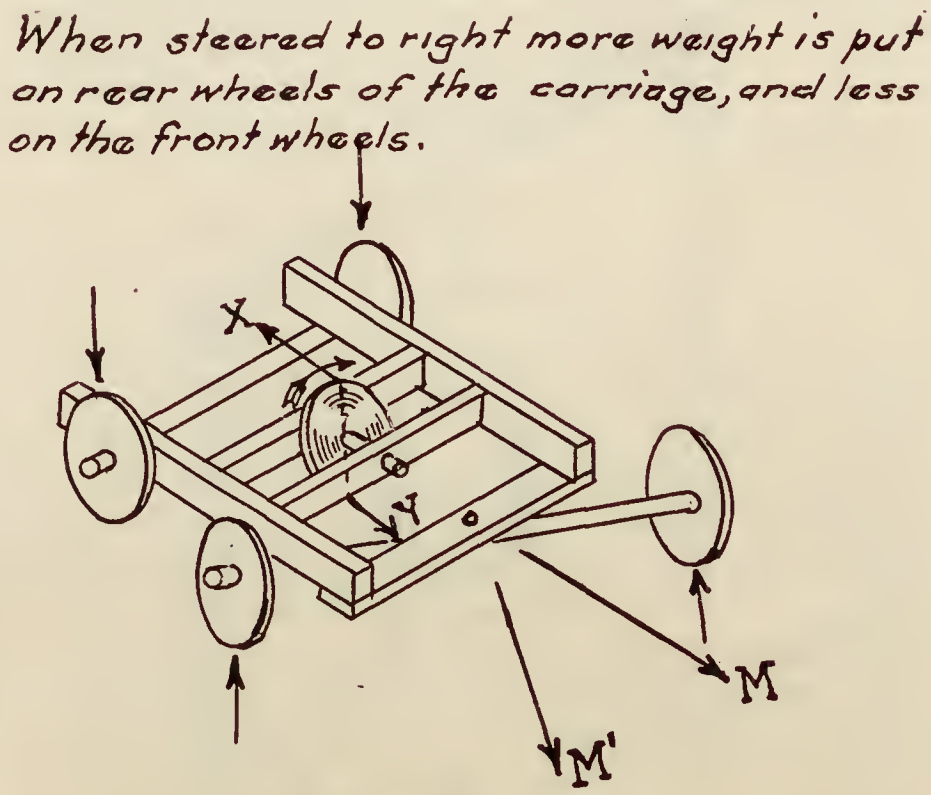


FIG 3

If the unbalancing action of the couple makes itself felt even in an automobile, a perpendicular motion of which is not possible, how enormously dangerous must be its effects in an aeroplane, which is entirely unsupported! The aeroplane lacks a point of reaction by means of which the couple may be rendered innocuous or even helpful (as in the monorail); the result being that an *aeroplane is bound to follow the gyrations of the motor.* The only means we have at present to counteract this action is by quick manipulations of the controlling devices; stresses are thereby set up in the frame that are responsible for most of the sudden breakages occurring during flight.

Did you ever notice that most of the accounts of accidents read: "Just as the machine was about to alight it suddenly swerved . . . etc."? The explanation, in view of the foregoing, is obvious. Unless the motor has been practically stopped the straightening of the aeroplane from a downward course to one parallel to the ground is going to generate a couple which will cause one side to dip; and the aviator not expecting this is generally caught unawares. Similarly (as any aviator will tell

you) in steering towards the right or left (when the couple will act up or downwards) a sudden rise or dip must be prevented by a judicious manipulation of the elevator. The ability of an aviator to take the effects of gyroscopic action into account makes great part of the difference between a good aviator and a—bum one.

The action mentioned above may be shown with the very simple apparatus illustrated in Fig. 4. The gyroscope is suspended from a carriage, which runs down a wire track imitating fairly well the path of an aeroplane just about to alight. While the carriage is coming down the incline no perceptible motion is noticed. But as soon as the bend in the track is struck, violent oscillation. which may even cause derailment, takes place, proving beyond a doubt that the lateral balance has been upset.

In closing let me remark that it is my firm belief due to gyroscopic action, most of them directy, some indirectly by causing vital parts to fail under the enormous stresses set up in the structure under its influence. It is our greatest enemy; an enemy whose power we do not yet sufficinetly realize. And I repeat, its usefulness in solving the problem of stability will lay mainly in showing us what to avoid.

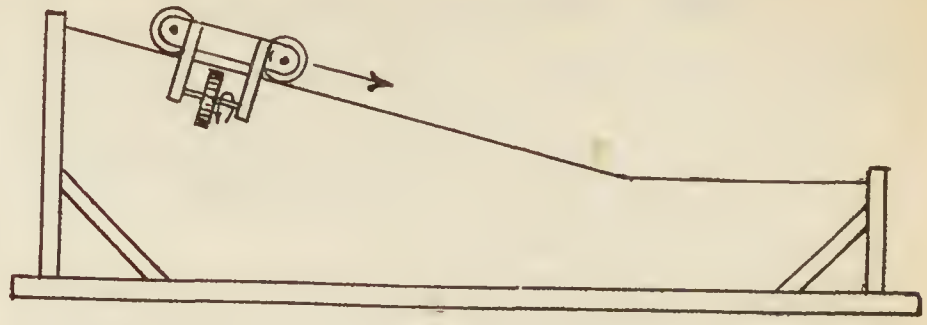
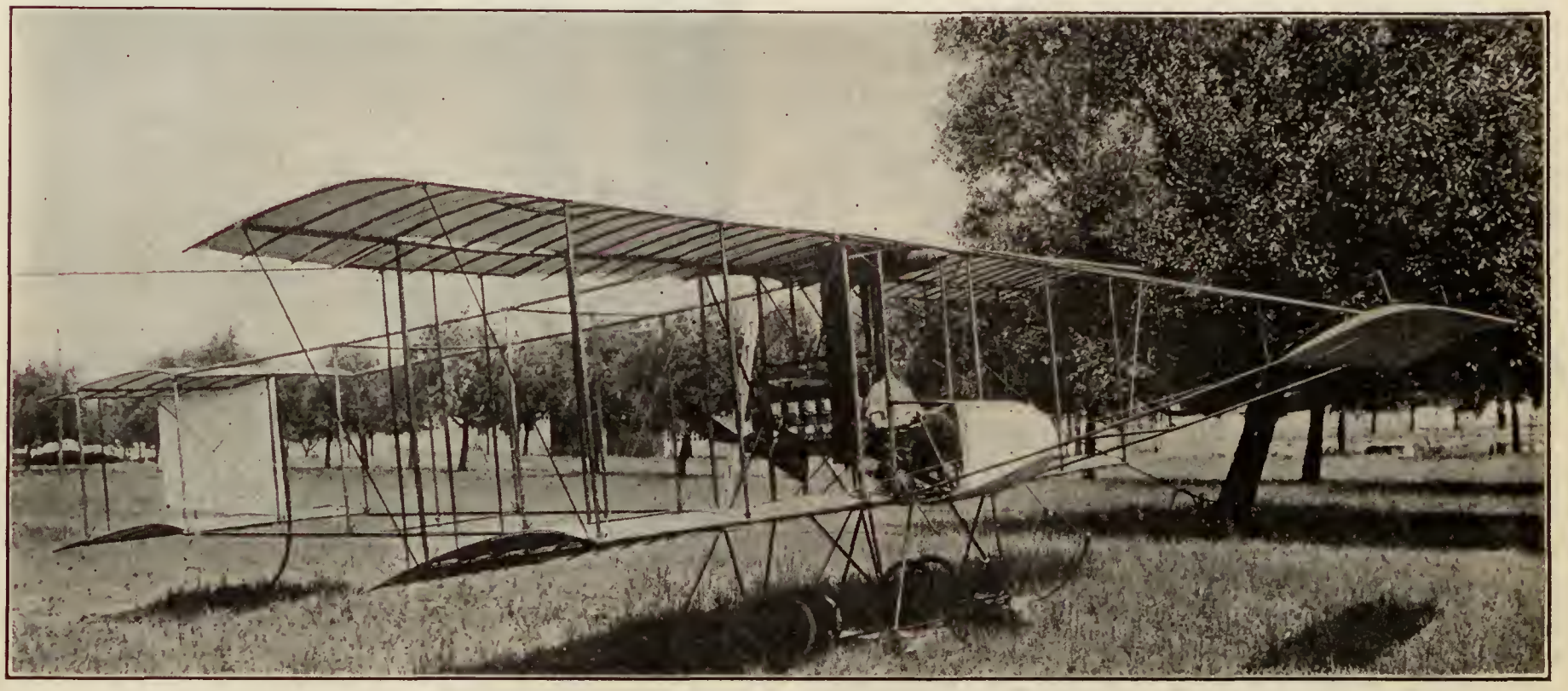


Fig 4

Philadelphian Constructs Farman Type Biplane



Sutch Biplane at League Island

AFTER an unsuccessful attempt to fly a Bleriot type monoplane during 1910 and early part of 1911, Edwin S. Sutch, a well-known mechanician, of Philadelphia, redoubled his efforts and finally constructed a Farman type biplane, using an engine of his own make.

He made his initial flight at Point Breeze but later in the summer permission was given him to carry on his experiments at League Island Navy Yard. Together with Lieutenant Richardson, who was at that time stationed at Philadelphia, they carried on their experiments far into the fall, making several flights. He is now making preparations for the coming season.

Vedrines for Parliament

JULES VEDRINES, the aviator, has accepted the nomination to the Chamber of Deputies to succeed the Minister of Fine Arts, who has been elected to the Senate.

Vedrines will make his fight on the platform of patriotism and will do his campaigning by aeroplane.

A NEW world record for time in the air for five persons was made at Munich, Germany, on February 20th, when the aviator Rentzel made an ascent with four passengers and remained in the air twenty-one and three-fourth minutes.

New Records in France

JULES VEDRINES, flying at Pau, France, on March 1, in a Deperdussin monoplane equipped with a 140-h. p. Gnome engine, established a new world's record for distance covered in a flight of one hour when by flying 102 miles.

Irregular wind currents interferred with Vedrines' flight during the last half hour, so the aviator flew low. Several times he passed so low over the soldiers who were maneuvering that they were forced to duck their heads.

The heat was intense and Maurice Martin, official timer, sought shelter in a tent hastily constructed of the wings of dismantled aeroplanes.

Tabuteau flying a Saulnier-Morane monoplane fitted with a 50-h. p. Gnome engine also made new records while flying at Pau on the same day.

Ascending at two minutes of eight, Tabuteau flew for two hours and at the end of that time had covered 145-2/3 miles. Taking the air again he flew 250 kilometres (154.34 miles) in 2 hours, 7 minutes, 54-1/5 seconds.

Tabuteau intended to try for more records but the bursting of a feed pipe forced him to descend.

Vedrines' records for 15 minutes, 30 minutes and one hour are approximately as follows; 15 minutes, 24.85 miles; 30 minutes, 49.71 miles; 60 minutes, 102-1/3 miles.

Speedy Cross-Country Flight

A NEW cross-country record was established by Maurice Tabuteau on a Morane-Saulnier monoplane, equipped with a 50-h. p. Gnome engine, on March 11, when he flew from Pau to Poiters, France, a distance of 261 miles in 155 minutes.

From Poiters he flew to Etampes and then to the aerodrome at Villa Coublay, near Paris.

Tabuteau left Pau which is in the south of France near the Pyrenees, at 7 o'clock in the morning and arrived near Paris, a distance of 450 miles from Pau, at 5.25 in the evening.

His average speed from Pau to Poiters was 104¼ miles per hour. He travelled at such a tremendous speed that he was able to get long rests at his two stopping places.

Prize for Balloon Race

THE Wurtemberg Aerial Navigation Association has voted $7,000, which will be added to the prize already offered in the Coupe Internationale des Aeronauts.

The last contest was won by Lieut. Hans Gericke, which entitles Germany to have the race held in that country in 1912.

D. Graham Gilmour

GRAHAM GILMOUR, who was killed by a fall in a monoplane in Old Deer Park, Richmond, England, left word that he wanted his funeral to be "merry and bright," and that there should be "no mourning or moaning."

The coffin covered by a purple pall, was conveyed from Richmond on an automobile chassis, which was also covered with purple. The machine was driven by James Radley, the well-known aviator. The mourners followed in automobiles.



Photo by Paul Thompson

D. Graham Gilmour

There was an immense quantity of flowers, but at the late aviator's wish few were white. A wreath of crimson roses sent by a friend bore the words, "His Last Long Flight." A small bunch of violets and mimosa carried the inscription,"In sorrowful memory of one whose youthful spirits and kindly words cheered a day in an old woman's lonely life."

There was a large gathering at the grave side but again in accordance with Gilmour's wish, many of those present did not wear mourning. Among the mourners were: T. O. M. Sopwith, C. Grahame-White, Mrs. Maurice Hewlett, Mr. Darracq, Mr. Blondeau, H. E. Perrin, secretary of the Aero Club of the United Kingdom, and Mr. Hubbard, secretary of the Aeronautical Society.

THE AERO CLUB OF PENNSYLVANIA

Room C. Bellevue-Stratford Hotel
Philadelphia, Pa.

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NOTICE OF MEETING.

As the first Friday in April is Good Friday, the next stated meeting of the Aero Club of Pennsylvania will be held in the Bellevue-Stratford on Friday evening, March 29th, 1912, at 8 P. M.

George S. Gassner,
Secretary.

CLUB NOTES.

The meeting on March 1st was fairly well attended, and proved most interesting and instructive.

The Committee on Grounds made a very encouraging report, and while it is not definitely settled, yet there is good prospect that suitable flying grounds will soon be available.

A number of beautiful designs were submitted for the club burgee and pennant. After a full discussion a design was adopted, and the committee instructed to procure a large burgee for the club, and a number of small pennants which were ordered by the members.

Lieut. Cunningham of League Island, briefly outlined the plans and purposes of the advanced naval base school recently established at that place. By resolution the club heartily endorsed the proposal to establish and equip a government aviation school for which the island is ideally adapted with both land and water.

Mons. Flesche, a licensed pilot of the Aero Club of France was a welcome visitor, and made a brief address.

Dr. Geo. A. Spratt, of Coatesville, Pa., gave a very fine lecture upon air pressures and centers of equilibrium, illustrated very freely by models and diagrams. While very technical and scientific, it was so clearly explained that it was most instructive. Dr. Spratt was associated with the Wrights in their early Kitty Hawk experiments, and has been a most careful student ever since. It is hoped that he will soon publish the results of his investigations, the first inkling of which was given in this lecture to the Aero Club of Pa.

Record Flight to Paris

BUFFETED by high winds and most of the time flying through a drenching rainstorm, Henri Selmet, in a monoplane, made a non-stop flight from London to Paris on March 7. His speed was remarkable as he covered the distance of 246 miles in 177 minutes. Salmet landed at the aerodrome at Issy-les-Moulineaux near Paris, almost completely exhausted and so chilled that he had to be assisted from the machine.

Only once before has this unusual flight been made. On April 12, 1911, Pierre Prier, who was murdered last August, flew in a Bleriot monoplane from London to Paris without stop. His speed was about a mile-a-minute.

Later, after transacting some business in Paris, M. Selmet, who said he came here by the air route because the British coal strike had made travel the usual way uncertain, started back for London. His flight from London to Paris broke many records. In an interview here before he began the return trip he said:

"As the wind was strong and gusty and blowing at my back I had to rise at Hendon over 6,000 feet to find steadier air currents. As the clouds prevented me from seeing the country over which I was flying I had to steer by the compass. I went somewhat out of my course, and it was at Eastbourne that I headed out to sea.

"Now and again through a hole in the clouds I caught a glimpse of the channel, and afterward of land in France. It was not until I reached Gisors, thirty-one miles from Paris, that I was able to descend and, picking up the railway, get my bearings for Paris.

"I felt immensely relieved when the Eiffel Tower showed me that the first half of my journey was at an end. I suffered a good deal from the cold, and the machine was a good deal buffeted by the wind."

Aero Club has New Secretary

Cortlandt Field Bishop has resigned from the secretaryship of the Aero Club of America and sailed for Europe on March 14th.

C. W. French has been elected to fill the vacancy.

The Gordon-Bennett Aviation Race of 1912

Foreign Aeroplanes We Have to Fear Most

By Earle L. Ovington, Licensed Aviator

WHEN Charles Weyman won the Gordon-Bennett race of 1911 on a Nieuport monoplane, he brought the Gordon-Bennett trophy to this country. Under the rules of the donor, the race, therefore, will be held in the United States during the coming season.

Glenn Curtiss electrified the aviation world by winning the Gordon-Bennett trophy for the first time at the historic meet at Rheims, France. Very few seem to realize what remarkable work Curtiss did at that meet. The machine he had with him was one which he built himself, even down to the propeller and engine. Everything about it was American through and through and original with the daring aviator who drove it. In spite of the fact that he was in competition with the fastest monoplanes that France could turn out, he won the historic trophy. That was in 1909, and consequently the 1910 Gordon-Bennett race was held in this country. The scene of the contest was Belmont Park, and most of you know the results. Leblanc, captain of the French Gordon-Bennett team, had the race practically won with his 100-HP, 14-cylinder Gnome driven Bleriot monoplane, when he lost control of his machine and plowed into a telegraph pole, cutting it completely in half, wrecking his machine, but not injuring himself. That evening I saw him with simply a small patch over his eye. Incidentally, this is a striking argument in favor of having the engine in front rather than behind the aviator. Leblanc unquestionably would not be alive today had his engine not been located so as to take the greater part of the shock.

Owing to the unfortunate accident of Leblanc, Grahame-White, who was running second with the same type and powered machine, took the trophy back with him to England, and the last Gordon-Bennett race, that is 1911, was held over English soil.

As an American, of course I am proud of the fact that the cup was brought to this country, and grateful indeed to Charles Weyman for gaining, what was technically called, an American victory. As I understand it, however, Weyman has never been in America, was born in the island of Hayti, and can hardly speak English. The fact that he was born on an island belonging to this country, however, makes him technically an American, and for that reason we are technically entitled to the cup. I sincerely trust, however, that if we win the cup for the next season, we shall do so on an all-American made machine, driven by an American born and American bred aviator.

The manufacturers in this country have been prone to neglect the wonderful strides which have been made abroad. They follow out their own pet ideas irrespective of what the rest of the world is doing. France, on the other hand, has kept her eyes jealously upon us Americans, and anything new that is brought out which they consider good they promptly copy. For instance, when Curtiss brought out his hydroplane it was not long before they had them in France, and now the English are copying Curtiss' ideas outright. In other words they are broad-minded enough to realize that someone else may have ideas besides themselves, and have profited accordingly.

Our American manufacturers, on the other hand, have neglected some of the most remarkable discoveries made abroad in the design of their machines, with the result that considered from the standpoint of the best foreign aeroplane our machines are in many ways behind the times.

A brilliant exception to this rule is the new Curtiss hydro-aeroplane, which is probably the most original type of aeroplane which has been evolved since the practical period of aviation began. Incidentally, I thoroughly believe that this machine will open a new era in the development of the aeroplane, for it is practicaly a boat with wings, and therefore, perfectly at home in the water, rather than an aeroplane to which floats have been attached, and therefore unstable in an unnatural element.

Let us glance for a moment at the foreign machines which will no doubt be brought to this country in an effort to wrest the cup away from us.

Probably the most prominent, in the speed class at least, is the Nieuport. This is the machine that won the last Gordon-Bennett race, and unless we are very careful, it is going to be the machine that will win the next one. There are some points on the Nieuport which the American designers could well copy. The most important feature unquestionably is the reduction of head resistance, which is accomplished by making everything of a streamline form, so that as far as possible head resistance will be turned into skin friction.

The wing section of the Nieuport is also remarkable and would bear close analysis from our American manufacturers. Taken on the whole the Nieuport is unquestionably the most efficient all-around machine of the present day. It is not only a good flyer, but a good glider as well, and will rise very rapidly indeed. Its superiority was markedly shown in the last French military trials.

Another machine which has come meteorically across the horizon is the Deperdussin. This machine has lately broken the world's record for speed, attaining a velocity of over 101 miles per hour, and beating the fastest times of the Nieuport, made by Weyman. In spite of this victory, I am not inclined to consider the Deperdussin as good an all-around machine as the Nieuport. We can

hardly base an opinion upon the merits of a machine by simply one performance and I shall have to hear more about the all-around performance of the Deperdussin before I consider it in a class with the Nieuport as to all-around efficiency. However, there is no question whatever but what it is a very fast machine and will show up prominently in the Gordon-Bennett race to be held in this country during the coming season.

In the biplane class probably Breguet will show up pretty well as there is no doubt but what his is the fastest biplane in Europe today. However, my private opinion is that the biplanes will not have the ghost of a show in this coming international contest. If we Americans are to hold the trophy in this country we must build fast monoplanes to compete with the French article. To be sure very fast biplanes have been built in this country, that is considered in comparison with other biplanes, but a speed of about 65 miles an hour is the limit, which, of course would be useless in competition with a 90 or 95 mile an hour space-devouring monster.

We need not expect anything from England which will compete with the French machine, unless they move a great deal faster than they have in the past. Most of the British machines are simply copies of the French and in several cases practically no originality was used at all. There are some original machines to be sure, of British manufacture and design, but these are not among the fastest. France, therefore, is the country upon which we must keep our eye, and her aeroplanes are most to be feared.

In spite of the fact that much was said about American machines before the last Gordon-Bennett race held in America, that is the 1910 contest at Belmont Park, we fell down lamentably when we were put to the test. It was perfectly evident that American manufacturers had not made the preparations they should have for such an important event. I sincerely trust that this will not be the case in the coming contest. If the American manufacturers haven't enough patriotism to put in a fast machine and spend plenty of time to get it just right they might at least consider doing so from a standpoint of cold business. There is little doubt but what the winner of the next Gordon-Bennett will benefit very greatly from a business standpoint. Indeed there is practically nothing which Nieuport could have done which would have given him the wonderful position he holds today in aviation if his machine had not won the Gordon-Bennett race in England last year. Looked at from a standpoint of patriotism or from a standpoint of business, therefore, it will pay the American manufacturer to really make a decided effort to hold the Gordon-Bennett trophy in this country.

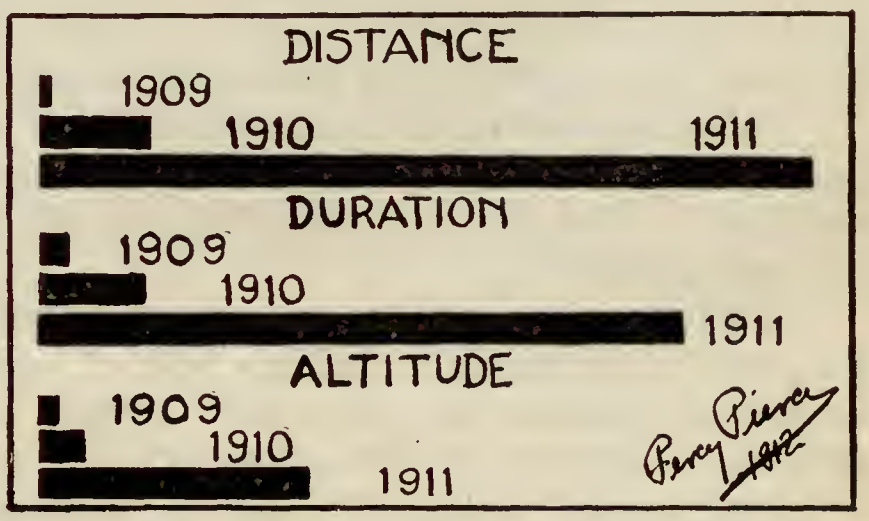
America has twice won this famous aviation trophy. Let us win it for the third time during the coming season and then let us keep on building machines which will keep the trophy on this side of the water. We've managed to keep our international cup for yacht racing where the foreigners cannot get at it. Let us do the same in the field of aviation.

A Great Step in Model Aeroplane Records

By Percy Pierce

HAVE the majority of people ever stopped to think what a model aeroplane is and what it has accomplished? Probably many aero enthusiasts have never seen a real flying model, and believe if there are any of these little creatures they don't amount to very much. Have they ever been to a model aeroplane meet or tournament where six or seven of these little flyers are in the air at once? Have they ever seen two or three of them collide in mid-air? It is not only interesting, but exciting, to watch a well-made model "take to the air." Some rise up to a great height after making a fine "get-away," and sail off until they disappear in the distance, with their owners frantically running after as fast as their legs will carry them. Others will rise up and make ten or twelve circles before they finally soar down to mother earth again.

The table below shows clearly what model aeroplanes have been doing for the past three years. Does it not surprise you to see what a long jump has been made from the first flights to the present day? The progress shown in models is even more evident than in that of the full-sized man-carrying machines. These results are certainly astonishing and are what will make the young mechanic strive to make even a more decided improvement this coming year. The jump shown is greater in distance than in other ways, as is the case with larger craft of this nature. This table shows only the results achieved by young America.



If any of those who read this little "write" would like to ask questions regarding the above table, or other aero matters, I would be very pleased to answer to the best of my ability. Address inquiries to Percy Pierce, 5907 Osage avenue, Philadelphia, Pa.

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Pilot Licenses

A VERY wry face has been made at the aeronautic bills before the New York State Legislature. Some have taken exception to one of them because of the fee charged the aviator for his examination by a State Board to determine his competency.

The chances are that if the numerous State bills are passed and State Boards of Examiners are appointed, the appointees, if the rule of politics is followed, will be quite ignorant of the science that they are to pass judgment upon and wholly incapable of fulfilling the duties that would be thrust upon such a State Aeronautical Board.

"Who is competent to judge the ability of an aviator, and who should plan the tests and regulate them?" The aviators themselves are asking this very question.

Of course, some satisfied soul might murmur that there is already a controlling body of aeronautics in America that grants pilot licenses for aeroplane operators, and that legislation to regulate this question is quite unnecessary. It might also add that affiliated clubs of this controlling body are cautioned to have no dealings with those aviators who are not licensed pilots.

In other words, you cannot play aviation officially unless you are a party approved by the controlling body.

For absurdity, this plan for the centralization of power has but few comparisons; for absolute worthlessness the pilot license test for aviators stands forth unexcelled.

In view of the absurd requirements now in effect to secure aeroplane pilot licenses, it is not to be wondered at that the War Department has seen fit to have a test of its own.

In any case, an aviator who graduates from a standard aviation school could pass either the international test or the War Department test without difficulty.

Because Harry Atwood declined to be in a hurry to secure his pilot license, we did not notice that he was less of an attraction or that he flew with less ability. As a matter of fact, he never did actually fulfil the requirements of the test, but we notice that he received his license in time to enter the Boston meet.

How many of the Wright aviators actually have taken the required tests to secure their pilot licenses? It does not make any real difference, for after Orville or Wilbur Wright has said they are competent to fly they generally do.

As a matter of information we would like to know who in these United States are more competent to judge the ability of aviators than Orville and Wilbur Wright or Glenn Curtiss? Is it not laughable that after a man has graduated from either of these schools that a body of men would seek to force them to pass childish tests before observers, some, if any of whom, have never operated an aeroplane in their lives, and perhaps none of them will know anything about the real science of the art.

There is as much technique in the art of flying an aeroplane as there is in playing a violin. The point is that it takes an artist to observe it.

Why not, in order to obviate all hard feelings about this matter, let the Government confer a charter upon aviation schools whose standards shall be judged high enough to enable them to grant certificates that will be accepted anywhere as evidence of a man's ability to fly an aeroplane.

Experts could draw up a set of tests for the Government and at those schools where the observers were not deemed competent, Government observers could be sent.

The day of guesswork is past. Guessing at altitude, pacing off distances and timing with an Ingersoll are methods that belong to another era.

The time is at hand for the Government to separate the tares from the wheat. Let the Government have a body of **EXPERTS** prepare tests that are real tests. Let them take over the entire control of the work of licensing aeroplane pilots.

There is one aviator who has been flying since last summer at exhibitions throughout the South and West. He is still flying and doing remarkable work. However, he is not yet a licensed pilot but it does not seem to be keeping him awake at night.

It is absurd that a graduate from a standard school should have to wait nine months or a year to become officially recognized as an aviator. His certificate of graduation should have entitled him to every recognition accorded any licensed pilot.

Only the other day a girl was killed in France while trying for her pilot license. She had persisted in making daring turns apparently through ignorance because knowledge should have cautioned her against such flying. If the observers had been alert they would have realized during the first tests that she was not yet competent to try for her license and would have stopped her flying and probably saved her life.

Up to the present the aviators have humored this state of affairs in America. Today there are almost as many unlicensed aviators as there are licensed ones. It does not seem to interfere with the popularity of the former, and the feeling is growing that a pilot license as granted today is a **JOKE**.

That principle which allows a body of untrained, and for the most part unscientific, men to determine the ability of an aviator, is fundamentally wrong. It cannot last!

Parachute Jump from an Aeroplane

FOR the first time in the history of aviation, a man has dropped from an aeroplane with a parachute.

This feat was accomplished at the Jefferson Barracks, near St. Louis, Mo., on March 1. Anthony Jannus, the intrepid aviator, operated a Benoist biplane, while Captain Albert Berry, the noted aeronaut, performed the parachute leap.

Capt. Berry and Jannus left the Kinloch aviation field in a two-passenger biplane about 2 o'clock in the afternoon. Beneath the machine, in a specially constructed case, was a large parachute similar to those with which aeronauts drop from balloons. The first indication the soldiers had that anything unusual was to take place was when they heard the buzzing of the propeller and saw the airship flying high and swiftly.

Capt. Berry was seen to leave his seat in the machine, which was then perhaps 1,500 feet high.

The soldiers saw the man who had moved slip down under the aeroplane and climb to a trapeze bar attached to the parachute. With practiced hand Jannus steadied the machine. Berry gave a quick jerk of a rope and a knife flashed. Then man and parachute plunged downward, while the aeroplane, bouncing up like a cork, suddenly poised and steadied itself.

The man shot toward the earth, the parachute trailing after him. Suddenly the parachute opened. The rapidity of his descent was checked, and, amid cheers, the first aviator to make such an attempt reached the ground in safety.

"I must have been between 1,000 and 1,500 feet up when I cut loose." Capt. Berry said, "I didn't feel a bit nervous. I have made many parachute leaps from balloons, and I felt certain this experiment would succeed.

"I can't describe my sensations as I dropped toward the earth. I thing I was more concerned for Jannus in the aeroplane. But I felt relieved when the parachute opened.

"My drop from the aeroplane justifies my belief that such a performance was feasible, and while it was attended with danger, it is that feature of the performance that adds thrill to it. I made up my mind that I would go through with it when I took my seat in the machine.

"Had it been my first drop in a parachute I would have lost my nerve and probably my life. When I cut loose I dropped fully 500 feet before the parachute opened. I descended so rapidly that I began to feel uneasy about whether the parachute would open. Then I began to slow down, and I knew that I was safe. I glided from the parade ground over one of the mess halls and alighted with practically no force at all.

"Ordinarily a parachute will open when one drops from a balloon at a 200-foot drop, but my descent was 500 feet, and had I been afraid I would have fallen out of the rings. I am glad I took the chance and that it was attended with such success."

Girl Aviator Has Fatal Fall

WHILE attempting to pass her third test in order to qualify for an aeroplane pilot license, Suzanne Bernard fell with her biplane from a height of 180 feet and died ten minutes after the accident occurred.

The girl, who was but nineteen years old, showed ability together with daring in the first two tests which she passed most successfully. Disregarding the warnings of the officials to be more prudent, in the third test Mlle. Bernard attempted a sharp turn to the right, but the machine was apparently caught in an eddy and capsizing fell directly to the ground crushing the intrepid girl beneath the motor.

The accident occurred at Etampes, France, on March 10.

Interest in Military Aeronautics Grows Abroad

France, Germany and England Very Active

THE large appropriation made by the French Government for military aviation in 1912 has stirred the French manufacturers and aviators to renewed activity. In addition to this from all quarters of France comes the news of practical demonstrations of the enthusiasm that has been aroused among the people in the effort to make France "Queen of the Air."

Towns are voting various sums; athletic associations are arranging that gate money from their exhibitions will be given toward buying Army aeroplanes and in many instances the hat has been passed around among the spectators at aviation meets for donations to the local Army Aeroplane Fund.

Paris banks propose to endow the Army with aeroplanes, special industries are collecting funds for aeroplanes which will bear the name of the individual industry which provides them, and the Chatelet, a Paris theatre, has undertaken to make collections at certain performances, the sum to be devoted to purchasing an aeroplane for the Army. In short, France has coined a new watchword, which is, "Our future is in the air."

Beginning by the hastily convened meeting at the Sorbonne a few days ago, the movement has spread until now it includes every section of the community. A great impetus has been given by the prompt response of the Paris press, headed by "Le Matin," which has opened a fund by the contribution of $10,000, followed by "La Journal," "Le Petit Journal," and "Le Petit Parisien"" each subscribing a similar amount.

The Paris Press Association is forming a National Executive Committee which is to organize the campaign, a part of which is the arrangement of aviation meetings all over France, the proceeds of which will be handed over intact to the War Ministry. French aeroplane manufacturers are lending aeroplanes and giving the services of aviators free of all charge.

A theatrical aviation league is now being formed, for which all the leading theatres will shortly give special matinees. It has Mme. Sarah Bernhardt and Mounet-Sully as Presidents and will present several monoplanes bearing the names of the principal French actors and actresses.

Among other combinations for the support of aerial defense may be mentioned the school children, who have opened a one-cent fund with their teachers; the insurance companies, the employes in large Paris shops, the precious stone merchants, who will give an aeroplane called the Diamond, while shooting, fishing, and hunting clubs are arranging to be represented by three aeroplanes called respectively, The Marksman, The Fisherman, and The Huntsman.

The various boroughs or arrondissements of Paris are opening separate funds, and subscriptions are pouring in at the Mayors' offices. It is suggested to call machines thus to be bought "The Third of Paris," or "The Ninth of Paris," according to the number of the contributing arrondissements.

The colonies have also toed the line. An aeroplane to be called The Islam will be purchased by a fund opened by Mussulmans amid scenes of the greatest enthusiasm in Algiers this week.

Nor is the support confined to French subjects alone, a well-known Polish nobleman having just presented $3,000, touched, he says, by the splendid heroism of French airmen.

A remarkable feature of the subscription lists of the newspapers is the large proportion of poor persons sending a few cents each. This aspect of the movement throws a vivid light on the pride taken in the army by the lower classes of the population and is regarded as a most hopeful sign of the vital force of the nation.

Thus a collection in a ward of a Paris hospital for the poor, which produced nineteen cents only, although every inmate contributed something, was duly forwarded to the committee. Impoverished veterans of the Franco-Prussian war have forwarded sums varying from ten cents to one dollar, and many mothers and wives send small sums, according to their means, in memory of a relative killed in the cause of the conquest of the air.

Among the numerous ingenious devices for raising money the most interesting is a proposed aviation stamp on somewhat the same lines as the Dickens stamp. It will be of the value of three centimes (three-fifths of a cent) and be affixed to letters. It is hoped that the Government will see its way to have them on sale at every Post Office in France, and so allow even the humblest members of society to participate in one of the most astonishing examples of national solidarity of modern times.

The public subscriptions to the Military Aviation Fund in France has reached a total of $280,000.00 enough to provide 90 additional aeroplanes for the Army. These, together with the 500 monoplanes and biplanes already owned by the French Government, places that country far beyond competition in that particular branch of the military service.

The United States seems to be hopelessly outclassed by at least five other countries in the size and

efficiency of its aerial fleet. The French Government alone has a sufficient number of aeroplanes to invade any country on its borders without meeting with any great aerial resistance. Although this country was the first to realize the possibilities of the aeroplane as an agency of war, it has dropped pitifully behind.

Germany to the Front

ACCORDING to late reports, Germany is not to be left behind in the aviation world and plans are now on foot to equip the army and navy with a big aerial fleet.

An association has been formed for the purpose of promoting national enthusiasm for military aviation. The work will be carried on along the same lines as the great campaign recently inaugurated in France.

In order to block the efforts of France to become queen of the air, this association will issue an appeal to the nation to subscribe funds to furnish the army and navy with a fleet of aeroplanes capable of resisting the efforts of France to secure mastery of the air.

In 1908 $1,500,000 was raised in one month by popular subscription, on behalf of Count Zeppelin, and it is believed that this new movement will at least equal, if not outstrip, that record.

The Kaiser and Prince Henry of Prussia have supported aerial navigation in the army and navy, and thanks to their interest, instruction in military aviation has made rapid progress. It is believed that by the end of 1912 Germany will have not less than 400 qualified pilots.

Substantial progress is also being made with dirigible, and in point of speed, mobility, carrying capacity, the Zeppelin, Parseval and Siemens-Shuckert types have all undergone remarkable improvements in the last six months.

More Aeroplanes for England

ENGLAND is almost equally as active as France in the matter of expenditure for aeroplanes. The Army budget, which has just been presented to Parliament carries an appropriation of $850,000.00 to be devoted to the development of aviation in the British Army. A complete military aviation school has been established at Salisbury Plain, the great maneuvering ground of the English Army, where officers will be taught to operate the various types of aircraft.

The British military competition, is the most important step in military aviation in England, outside of the budget provision. This competition will be held in June next, and is open to the aeroplane manufacturers of the world. The British builders protested against this condition, but the military authorities desiring to acquire the best, no matter where it may come from, have thrown the competition open. A total of $55,000.00 in prizes has been offered in this competition. If all the $850,000.00 called for in the budget is spent for aeroplanes, the British Army will increase its aerial equipment by 160 craft.

Bague Mystery Solved

MOTOR broken down. Wind violent. I am sinking in sight of Calvi. Adieu." Signed, "Bague."

This message was found in a bottle which was washed up the beach near Nice, France, on February 22. It is believed to be the final message from Lieutenant Bague, who, on June 5, 1911, attempted to fly from Nice to the island of Corsica.

Lieutenant Bague left Nice about 6 A. M., on the morning of June 5, 1911, for Ajaccio, situated about the middle of the island of Corsica. He did not wish to stop at Calvi where the contestants in the Nice-Corsica contest were supposed to land, because every landing increased the chances of damaging the aeroplane.

Bague stated that he chose Ajaccio, so as to reduce to a minimum the chances of missing Corsica if a side wind drove him out of his course.

By starting so early in the morning Bague failed to secure an escort of torpedo boats which were available after eight o'clock. The reason for not waiting Bague said, was that the wind was so much stronger at eight o'clock than at six, that he preferred absence of wind to presence of ships.

The last news concerning Bague was given by a fisherman at the Garoupe lighthouse who said that about an hour after Bague left Nice, he saw a monoplane out at sea pitching and lurching heavily. The fisherman watched it for a moment and then busied himself with his lines and when he looked again the monoplane was gone. He believed that it had fallen in the sea but he could not affirm it for a certainty.

On June 10, 1911, a dispatch eminating from Marseilles, France, stated that the reported loss of Lieutenant Bague at sea was a hoax to cover his disappearance.

Paulhan Wins Cup

THE Coupe d'Aspremont was won by Louis Paulhan in a Curtiss hydro-aeroplane when he flew on March 11, from the aerodrome at La Californie, crossing an imaginary line in front of the Palais de la Jutee at Nice, France, and alighting there. Previous to his flight for the cup, Paulhan flew from Juan-les-Pins to La Californie.

Aeronautical Show Endorsed by Big Firms

Leaders of the Industry Engage Space

AFFAIRS are reported as coming along finely with the Aero Show to be held in the New Grand Central Palace, New York, May 9-18, next. Although it is more than two months before the opening, a large number of the biggest people in the industry have secured first choice spaces. Among these are Curtiss, Gallaudet, Boland, White Aeroplane Co., Twombly Motors, Baby Model Engines, Goodrich, Frontier Goodyear, Sturtevant, Electric Speedometer Co., Roberts, Diamond, American Aeroplane Co., Mea Magnetos, Kirkham Max Ams Motors. Others are Aerial Construction Co., A. F. Mangels, Aero, Aeronautics, F. A. O. Schwartz, W. A. O. Frost, H. W. Jacobs.

Loan exhibits will be made of various foreign machines, including the Paris-Madrid winner, Nieuport, Farman, Antoinetto, Morane, Deperdussin and Bleriot, while home exhibits are promised of the Curtiss Gordon-Bennett winner of 1909, possibly of the first Curtiss water machine "The Loon," the Burgess "Flying Fish," Chanute gliders, wind tunnel and other laboratory apparatus in working order from the Queen Company, and it is hopefully expected to have the original power machine of the Wright Brothers and one of the Kitty Hawk gliders.

The management is counting on live exhibits from the Weather Bureau, the Navy and the Signal Corps of the Army and it is expected to have one of the machines now being built for the Army under the last order.

Leo Stevens is building a special balloon, of hydrogen gas size, for the center of the building and a ticket office is to be established where visitors can buy rides in aeroplanes or balloons as one would purchase theatre tickets. A full line of various sized balloon baskets have been offered by Mr. Stevens. Another item of rather unique interest will be an aviator's parachute, weighing about a pound, which is inclosed in a fabric bag and attached to the flyer's shoulders. A string instantly opens the bag and the parachute will open shortly after the man gets clear of the aeroplane and let him safely to the ground, as has been demonstrated by Jannus at St. Louis.

Negotiations are still pending for a big Parseval sight-seeing airship to make inter-city trips at show time and to circle the city nights with illuminated signs on the sides of the big bag. Horace Wild has promised the smaller Parseval he recently bought for the Illinois Aero Club by April 15th. The Zodiac dirigible will be represented by its car, which is now in this country.

It is quite possible, also, that the famous Austrian monoplane, the Etrich "Swallow," will be one of the loan exhibits. Moving pictures and lantern slide lectures will be free to the public days and evenings during the show.

The operating company of the Palace, which has undertaken by an arrangement with the club under whose auspices the show has been announced, is fully cognizant of the state of the industry and intends to do everything in its power to help. It is fully realized that the coming show will be conducted at a considerable loss and the future conduct of shows a few years hence, it is anticipated now, will be in the hands of the industry itself.

The difference between the half dozen poorly supported shows of a year ago, a burden on exhibitors, and the present single exhibition, has made it possible for the present show to have such good support.

Plan Hydro-Aeroplane Race

PLANS are under way for a hydro-aeroplane race on the Hudson river to immediately precede the opening of the First Annual International Aeronautical Exhibition.

There are a number of hydro-aeroplanes in the vicinity of New York that will be available for such a race. Among them is the Wright biplane belonging to R. J. Collier. The pontoons from the Wright company arrived at Wickatunk, N. J., last week and they will be immediately placed on one of the machines there and will be tried out on the Shrewsbury river.

It is understood that the rules will permit of handicaps so that all machines will be on an even basis.

The race will probably start at the New York Yacht Club and it is understood that the prize will be a sliver trophy worth $2,500.

Italy has Space-Saving Sheds

THE space-saving aeroplane sheds described in the January issue of FLY, have been built at Aviano, Prov. Undine, Italy, under the direction of Cav. G. B. Fontana-Rava, who holds the Italian patent for this particular style of aeroplane shed.

The patent was filed November 5, 1910, and is No. 112,988.

It is well worth knowing that these sheds are in practical use and that standard builders abroad have found them to be advantageous structures for aerodromes.

Notes on Model Propeller Construction

Screw is Vital Part of Every Machine

By Philip McCutchen

THE vital point of every model aeroplane is the propeller. A poorly designed and badly balanced propeller will spoil the flights of the finest model built.

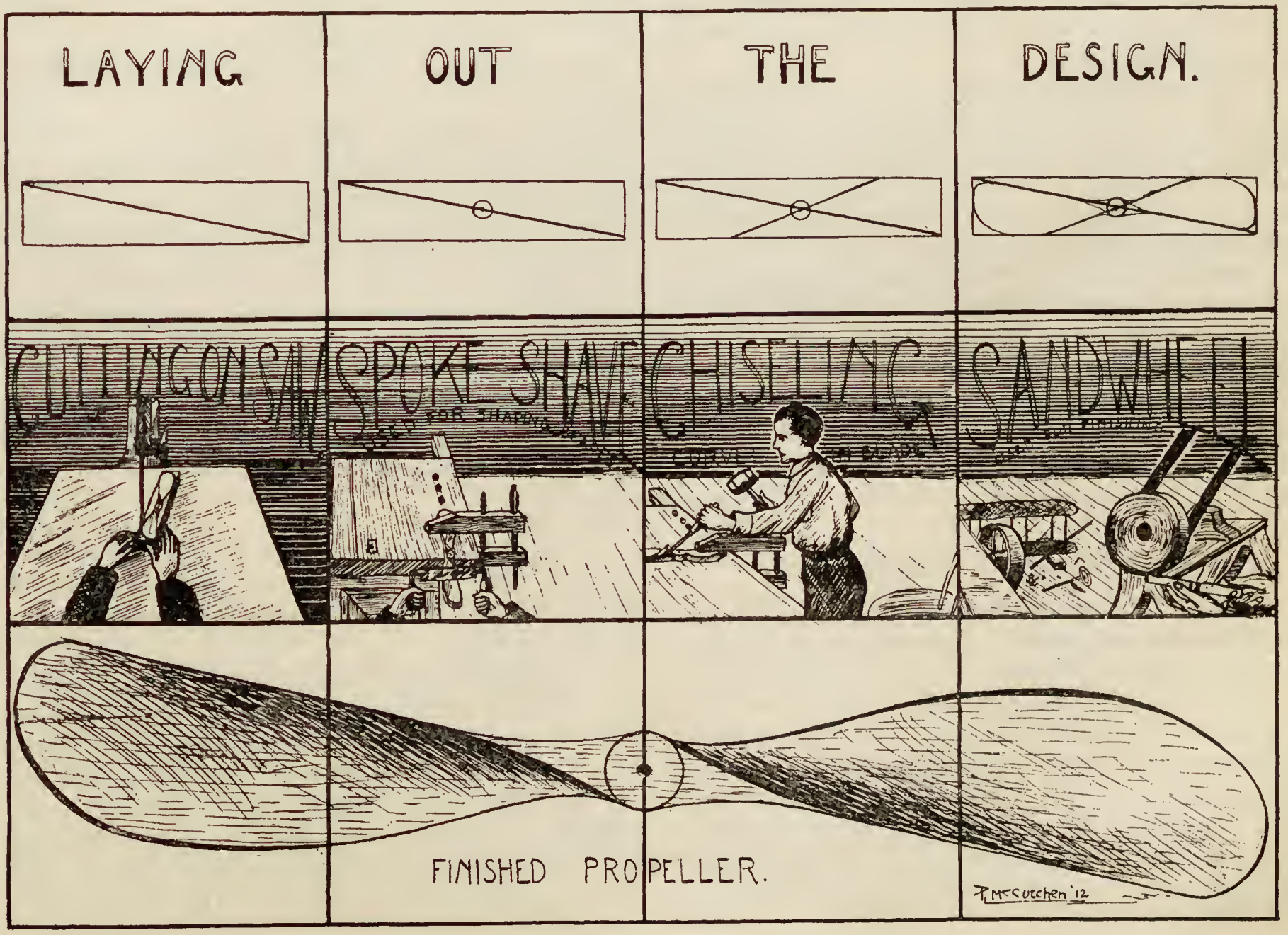
The men who make a business of manufacturing propellers for models exercise the utmost care in carving out the blades as the slightest slip means the utter ruin of an article that has consumed quite a lot of time in the making.

It is very interesting to watch a propeller expert at work. He first selects a block of straight grained wood, usually spruce, as the blank, and the design is traced on the face of the block with a pencil as shown in the upper part of the drawing. Placing the block on the band saw he cuts out the propeller blank following the lines traced in pencil. The blank outline of the propeller is then placed on the workbench and securely clamped in place. Using a spoke shave the workman gradually cuts the blades to the proper pitch. When this operation is completed the blades are given the correct aero curve with a gouge and malet. The rough propeller is now ready for finishing. Each blade is held against the sandwheel until all the rough places are removed then the propeller is carefully sandpapered by hand with very fine paper until it is perfectly smooth.

Several coats of shellac are applied, each coat being allowed to dry before the next one is put on. When the shellac becomes thoroughly hardened the surface is polished with fine pumice stone. A last coat is then applied and when this is dry the propeller has a finish like glass.

The model experimentor should carefully consider which design and what pitch propeller his model requires. The average racing model is fitted with a wide bladed propeller with considerable pitch. On the other hand the larger and heavier models fly best with a narrow bladed flat pitch propeller.

The number of rubber strands to be used in conjunction with these widely different propellers should also be taken into consideration. The racing propeller requires very little rubber whereas the narrow bladed



The 1912 Coupe Internationale d'Aviation

IT is apparent from the entries received for the Coupe Internationale d'Aviation, that the contest this year is going to be the largest yet held. Six countries have signified their intention of competing in this event, three of them being entered for the first time.

The new entrants are Switzerland, Belgium and the Netherlands. The appearance of the later country was as complete a surprise as the entry of Belgium and speculation is rife as to what aviators and what type of machines, they will enter.

The old Triumvirate consisting of France, Great Britain and the United States will, of course, make a tremendous effort to secure the Cup. America has won it twice while Great Britain has held it once. France, not yet but soon, if we do not watch out.

James A. Blair, Jr., Chairman of the Cup Defence Committee, is said to have stated that the committee purposes to do its best to hold the Cup but does not wish to have thrust upon it the necessity of again entering the race with a foreign areoplane. "In last year's race," Mr. Blair is quoted as saying, "owing to the indifference of American manufacturers, the American representative in the race was obliged to use a foreign machine."

It is to be sincerely hoped that "the indifference of American manufacturers" will not force an American aviator to use a foreign aeroplane. It is highly probable, however, that last year the representative was chosen with a view to the speed of the machine that he operated.

The Aero Club of the United Kingdom, it is understood, intends to enter C. Grahame-White and Gustave Hamel. The latter attained distinction as the first aerial postman of Great Britain.

Switzerland has named Edmond Audemars as their one entry. Audemars is well-known in America through his flying of the Demoiselle monoplane at Belmont Park in 1910, and later by his tour with John B. Moisant and others, under the name of the International Aviators.

For Belgium there are several well-known aviators who might be entered. Jean Olieslagers, who has held several world-records, is a master pilot of the Bleriot, while John Verrept, another great Belgian flier is capable of hanging up speed records with his Borel-Morane.

France is the country however that is now establishing new speed records, and Vedrines, who operates a Deperdussin, now has his machine tuned up to 101 miles an hour. Tabuteau, Bathiat and several others are following closely after Vedrines and there should be no difficulty in securing a speedy team to represent France.

In the United States there are at least six men who are building machines to enter the Gordon-Bennett but it remains to be seen how many entries there are. If there are enough of course there will have to be an elimination race. It remains to be seen how many of these contestants materialize.

Of course the Wright Brothers are, as usual, expected to build a machine that will beat the world; the same is expected of Glenn Curtiss. But probably some time will elapse before anything definite can be said regarding the American team.

On March 13th, at the meeting of the Board of Governors of the Aero Club of America, Charles Terres Weyman, who won the Gordon-Bennett Cup for America last year, was named as a member of the American team to defend the trophy at the race this year.

Readers will recall the editorial in the February issue of FLY in which this very act was anticipated.

Model Propeller Construction

Continued from page 23

flat pitch propeller requires a much greater quantity of rubber to prove efficient.

The average model builder likes to make his own propellers. In this desire he is usually somewhat handicapped by the lack of sufficient tools. I would suggest, if you are contemplating the construction of some propellers, that you secure a spoke shave and a set of chisels and gouges. You will also find a sandwheel an indispensible article. These wheels are easily made by glueing some coarse sandpaper on a wooden wheel of about eight inches in diameter. It is then an easy matter to attach this wheel to your jig saw or lathe.

Although a little more tedious, the propeller blank may be cut out with a fret saw in place of a band saw. When this blank is cut you will find that you have completed the most obstinate part of the job. The rest of the work using the spoke shave and chisels is plain sailing. Of course one is liable to make an aggravating mistake or slip once in a while, but you are well repaid by the efficiency and beauty of the propeller when it is ready to fit to your machine.

Questions and Answers

A Department for All Aero Students

Conducted by A. Roe Bugg

ATLANTA, GA.

Dear Sir:

Can you tell me how aluminum and magnalium compare in regard to weight?

T. G.

Aluminum weighs 180 pounds per cubic feet while magnalium weighs 160 pounds per cubic foot.

LENORE, N. C.

Dear Sir:

Do the Wright brothers demand a royalty at every meet where Wright machines are expected to fly?

R. B.

The Wrights have been able to make it very unpleasant for the management of all meets that do not pay them a royalty. It is understood that a certain sum must be paid them if their machines are to participate.

PALO ALTO, CAL.

Dear Sir:

What was the gas consumption for ballooning in the United States for the year 1911?

What was the weight per horse-power of the Giffard steam engine?

What is it of the Antionette aeroplane engine?

What percentage is considered for the efficiency of propellers?

R. D. C.

The gas consumption in the United States, in 1909, was approximately 6,950,000 cubic feet. The official figures are not available for 1911. It is believed that they will show a considerable increase.

Giffard's steam engine weighed 110 pounds per horse-power.

The Antoinnette aeroplane engine weighs about 5 pounds per horse-power.

The efficiency of propellers varies from 50 to 80 per cent.

WINNIPEG, CANADA.

Dear Sir:

Can you tell me of what the aeroplane equipment of the British Government now consists?

D. W. Z.

In reply to a question in the House of Commons toward the end of November, 1911, the Under Secretary of the State for War replied that there were twelve effective aeroplanes owned by the War Department and three more under reconstruction at the Army aeroplane factory.

Of the total, nine machines are English and six machines of French manufacture; seven aeroplanes of English manufacture and four of French construction have been purchased since January 1, 1911.

They are apparently made up as follows:

1 Paulhan.
1 Breguet.
1 Nieuport.
1 Bleriot Military type.
1 Bleriot XIII.
1 Farman.
2 de Haviland biplanes.
7 Bristol biplanes.

SAN ANTONIO, TEX.

Dear Sir:—

I would like you to advise me whether there are any patent laws preventing me from building a Curtiss biplane.

Could I fly in the races and meets with it?

Would I be prevented from flying this machine for sport?

Could I use the shoulder yoke?

Yours truly,

I. D. H.

If you will read the notice published on page 28 of the March issue of FLY, I think you will find the answer to your questions. Further information can be obtained direct by addressing the Curtiss Exhibition Co., 1737 Broadway, New York City.

CHRISTIANA, NORWAY,

Dear Sir:—

In FLY for February, 1912, on page 20, there is a table giving the altitude records up to the first of the year. You show Garros to be the holder of the altitude record up to the present time, with a height of 12,792 feet.

Will you then kindly tell me who it was that made the record of 13,776 feet? I have seen diagram showing this to be the actual altitude of the present holder of the world's record for height. Who is he?

Yours truly,

G. G.

Information, which the author of the article referred to believes to be accurate, stated that the Committee of the Aero Club, of France, had reduced the record, of Garros from 13,776 feet to 12,792 feet. For this reason the record of Garros was entered at the later figures.

MT. RAINIER, MD.

Dear Sir:—

Will you please advise me in Questions and Answers Department of FLY, what book on aviation motors you would advise a beginner to read?

Expectantly yours,

E. W.

Among the books that treat the subject I would suggest, "The Art of Aviation," by R. W. A. Brewer, or "Vehicles of the Air," by Victor Lougheed. Either of the books may be procured by addressing FLY Book Department, Bulletin Building, Philadelphia, Pa.

New Books for the Aeronautical Library

Additional Volumes on the Science of Aviation

(*See* FLY MAGAZINE *Book Department in the advertising section for the latest and best books on aeronautics.*)

The New Art of Flying, by Waldemar Kaempffert, is another alluring digest of the new science which is arousing every wide-awake nation in the world today to the development of aerial fleets.

The scientific accuracy of this book is quite equal to that of any other that has been published on the same subject, and yet it is written in a clear and interesting manner. The many problems that are involved in aeroplane construction, and which many of the lay readers do not understand, are fully explained in this new volume.

The many questions of flying are likewise carefully gone over and one who reads cannot fail to understand.

The respective merits of a score of aeroplanes are without doubt unknown to you. However, Mr. Kaempffert makes all this easy by word illustrating and cleverly displays the advantages and drawbacks of the different makes of the aeroplanes reviewed.

The work is well done; the book is profusely illustrated; the knowledge is given first hand and one cannot fail to learn new things about aviation if he reads "The New Art of Flying."

Flying Machines Today, by William Duane Ennis, M. E., gives an exposition of the principles and practices involved in aeronautics at the present time.

A sincere attempt to treat the subject fairly is, no doubt, one reason for the success of this work. Everything from gliding flights and hot air balloons to helicopters and dirigibles are treated with equal respect.

There is no reason why anyone in reading this excellent contribution to the subject of aeronautics should not benefit from it. The chapter, entitled "The Soaring Flight of Man," holds particularly alluring paragraphs, and having read them, one continues to read on and on until he at last finds himself reading the final pages of the book.

A chapter on aerial warfare is quite timely, and is one of the most important in the whole book. The facts as presented by Professor Ennis cannot be denied, and the aeroplane as an important factor in the work toward universal peace must be accepted.

In addition to the instructive reading matter, "Flying Machines Today" contains more than one hundred and thirty illustrations and half-tones of balloon, gliders and aeroplanes. Many of the photographs have never before been published in this country and add especial value to the book.

The Flying Girl, by Edith Van Dyne, is a clean and wholesome novel in which the heroine flies a type airship, the actual perfection of which would make aviation safer than automobiling.

On her very first flight the daring maid has all sorts of hair-raising adventures and becomes the victor in a thrilling battle in the air, and then rescues her enemy from his plunging aeroplane. The struggle in the air is described with a degree of skill that makes the combat seem a reality.

It is of course a pure bit of fiction in which the imagination is given full rein. It is only fair to say however that the author in her introduction states that two of America's pioneer aeroplane constructors and aviators, who extended to her many courtesies during the preparation of the novel, do not laugh at the possibility of such an aeroplane as she has conceived.

The names of several of the world's greatest aviators are cleverly woven into the story, but of course their feats are subordinated to exalt the flights of "The Flying Girl."

It is a gay tale that runs along evenly and interestingly abounding in villains and with sweethearts and lovers judiciously interwoven so that they finish together and bring the story to a happy conclusion.

The plot is a new one and the tale is one that will while away a pleasant hour. It is just the book to arouse in the boy or girl a wholesome interest in the art of aviation.

Aeronautische Meteorologie, von Dr. Franz Linke, has recently been published by F. B. Auffarth, Frankfurt, a. M., Germany.

This is considered one of the most important works that has been issued in the German language on this subject. The atmosphere and its workings are most completely covered in this work, and Dr. Linke is recognized as an authority whose opinion in this matter bears weight.

Der Maschinenflug, von Josef Hofmann, has recently come from the press of F. B. Auffarth, Frankfurt-A.-M., Germany.

This work aims to discuss the problems of nature which it has been necessary for the areoplane to overcome. Accordingly the work of the early experimenters is thoroughly reviewed and due credit given to their accomplishments.

It is most complete and brings the science of aviation up to the latest developments of the aeroplane, including the hydro-aeroplanes of Dufaux and Fabre. Considerable attention is given to the latest improvements and the newest types of Europe are accurately described and discussed.

TRADE TOPICS



Beachey making a turn while traveling at 65 miles an hour

After Europe's Laurels

The Goodyear Company announces that it is ready to make, here in America, any standard style of balloon obtainable in Europe, and make it more quickly and more satisfactorily as well, observing in the making the same quality that has already become famous in Goodyear No-Rim-Cut Auto Tires.

The Goodyear Company is making and has made a number of balloons for the United States Government, besides filling its private orders. The company has from the first made a specialty of fabric—for gas bags, aeroplane wings, pontoons for hydroplanes, etc., besides standard types of aeroplane tires, bumpers, springs, life preservers and other accessories.

"The public," says Manager Preston, of the Goodyear aeronautic department, "may have an idea that flying is a fad. Such an idea is wrong and anyone who has it would be amazed at the amount of balloon and aeroplane business there is in this country. Our aeronautic department is being enlarged almost all the time. Our experts receive, besides orders, some of the oddest inquiries and unusual propositions you ever heard of. But we work them out, one after the other, and have been instrumental in introducing a number of new ideas in aeronautics."

It was in the Goodyear factory that the gas bag for Vaniman's great dirigible balloon "Akron" was made. Harry Atwood, aviator, is obtaining material there for his proposed aeroplane venture upon the Atlantic. Curtiss, the Wrights and other noted aeroplane manufacturers use large quantities of Goodyear material in their machines. Akron, as indicated, is out after and is getting Europe's laurels.

Sturtevant Aeronautical Motor

A new aeronautical motor brought out by the B. F. Sturtevant Company, of Hyde Park, Boston, Massachusetts, shows that long-established concerns are beginning to realize the ultimate importance of aeronautics and the commercial practicability of catering to this class of trade.

The motor is of the four-cycle water cooled stationary cylinder type, with four or six cylinders arranged vertically. The bore and stroke of each are four and one-half inches, and the makers guarantee these motors to develop 40 and 60 horse-power at 1200 R. P. M. The weights are 200 and 285 pounds respectively, including carbmeter, magneto and oil tank.

The lubricating system is especially refined and modern. No hand oiling is necessary and there are no grease cups. All lubrication is positive and forced. Two pumps, maintaining a pressure of 20 pounds, are used and the base of the engine is so well-drained that operation at extreme angles is possible.

The control is remarkable for an aeronautical engine, the operator being able to start his own motor, since the engine may be throttled to 300 R. P. M. Ignition is by a Mea magneto. which permits starting under a retarded spark. The motors can be equipped with mufflers if desired.

1912 Curtiss Catalogue

The Curtiss Aeroplane Company has set a standard in the United States for aeronautic catalogues with their issue of 1912.

Its twenty-eight pages contain more than fifty half-tone illustrations and give proof of the safety of the aeroplane in flight.

In addition the catalogue contains an accurate memorandum of the records made and held by Curtiss aeroplanes and Curtiss aviators. It contains pictures of the three handsome trophies won by Glenn Curtiss and the details of the awards.

There is contained in this brochure a complete description of the Curtiss aeroplanes, together with detailed photographs of the important parts of the machines.

To possess this catalogue issued by the Curtiss Aeroplane Company is to own a handsome souvenir of the aeronautic industry and its development.

Sloane wants Municipal Field

In order to devise means to secure Creedmore, the old rifle range on Long Island, as a public City Park for Queensborough and as the first municipal aviation field, a luncheon was given at the Columbia University Club. John E. Sloane, president of the Sloane Aeroplane Company, who asked the Park Commissioner of New York City to establish aerial isles of safety, was the host. There was present Messrs. Hudson Maxim, Thomas A. Hill, Park Commissioner Eliot of Queensborough, Louis R. Adams, Senator J. F. Duhamel, Lee S. Burridge, Arnold Kruckman, Henry Woodhouse, Ladis Lewkowicz, Bud Mars and Frederick Charavay.

Plans were formulated to ask the State to secure the 400 acres constituting the abandoned rifle range.

Warm Gloves for Aviators

Letters patent were recently granted to Arthur L. Carron, of Geneva, N. Y., on an electrically heated glove designed to keep an automobile driver's hands warm even in the coldest weather. On the exterior the glove appears much as an ordinary leather glove except that it is provided with metal terminals or buttons on the inside of the fingers. On the interior is a glove of knit or textile fabric which has the fingers wound with heating coils of German silver or other suitable wire incorporated in the fabric in such a manner as to follow the contour of the fingers so as to envelope them when the glove is placed upon the hand; that is, the fingers are inserted through the coils. These coils are electrically connected in any manner desirable to suitable metal terminals.

All this with a Kirkham

From The New Britain Herald.

February 19.

Nels J. Nelson, one of New Britain's favorite sons, made a successful flight in his new aeroplane yesterday afternoon from a field on Newington Road, at the head of Chapman street. The feat was witnessed by nearly 1,000 persons, who were drawn to the spot either by a sight of the airship in the middle of the field or by the hum of the motor.

The machine used was the first made by Nelson and the third in which he has flown. The first two constructed were smashed to pieces on trial flights, but accidents did not deter the hero of the east side from sticking to the game. Two successful machines were made, and this, the third, caps the climax for perfection. With the six cylinders working right, the engine will develop sixty horse-power and travel sixty miles an hour. This was demonstrated yesterday, when Nelson flew at least six miles in less than half a dozen minutes.

Previous to the flight Nelson took two trial spins across the field, just feeling out the motor, as he had never attempted a flight in this machine. The engine worked to perfection and never missed or skipped for a moment. Satisfied that everything was O. K., Nelson headed the machine in a northerly direction. Mechanician Richard Nygren started the propeller and the word to let go was given.

In a short time Nelson passed from view over the brow of the hill on the west of the field from which he started. The crowd scampered to the top and arrived in time to see the dauntless young man coming in a southeasterly direction. Like an arrow he flew over the heads of the watchers. The engine was working as true as the sun. The machine was flying as steadily as could be imagined. As he passed over the hundreds of upturned heads, Nelson was given a salute from the spectators. His name, which is painted in large letters on the under side of the elevating plane, could be read easily.

Off towards Meriden he sailed a hundred feet higher than at the beginning. About a mile from the field he turned to the east, then to the west, and after describing a perfect circle, came back to the starting point and landed easily after flying a distance about two feet above ground.

Nelson had been in the air five minutes, nine and three-fifths seconds and traveled about six miles, according to his own calculation. He told a "Herald" reporter after the flight that the machine was in perfect running order. **The engine worked like a song, he said, and barring the noise, he would not have known that an engine was behind him, as there had been no** jarring sensation. "It was very cold in the upper strata of air," he said; "too cold to think of making an extensive flight." Nelson met with little trouble during the spin, except for a number of air pockets he ran into while flying over Clayton.

(Nelson used a Kirkham motor.—Ed. Note.)

New Model Catalogue

One hardly realizes the importance of the model aeroplane business in the United States today until he has had the opportunity of glancing over the pages of a catalogue of model supplies.

Such a book has recently been published by the Ideal Aeroplane and Supply Company, of 84B West Broadway, New York City.

The forty-four pages of this pamphlet show with remarkable completeness and accuracy the enormous field covered by the model business today.

Aside from the hundreds of parts and models advertised there is also much general information contained therein, and one of the most important is a set of rules for model aeroplane contests. These rules were compiled expressly for this catalogue by Edward Durant, well known in model club and aeronautic circles and elsewhere in New York.

There are also many testimonial letters throughout the pages of the catalogue testifying to the promptness of the shipments of this company and to the excellent business methods followed by this house.

Gnome Motors and Parts in Stock

The Aeroplane Motors & Equipment Company, of New York, announce that they have and will always have in stock in New York a certain quantity of Gnome Motors 50 and 100 H. P., and a complete stock of spare parts.

The manufacturers will certainly be interested to learn that, as a number of aviators were wishing to have their machines equipped with the Gnome Motor, but were prevented to do so by being asked to wait too long to obtain delivery of this motor, and also worry at the idea that they will have to wait again some time before they can obtain spare parts when they are in need.

With the Gnome motors and spare parts in stock here, we should certainly see a great number of aviators using this motor this summer. As a matter of fact we have in America a number of manufacturers who build perfect machines and also have very good aviators. When these manufacturers will find it possible and practical to equip their machines with the Gnome Motor, we can be confident that a number of world-records will be held by America.

GOODYEAR Stands for Durability

Balloons, Balloon Fabric, Aeroplane Fabric, Accessories

If you are in the market for a spherical or dirigible balloon you can now buy it right at home. Not necessary to go to Europe. We manufacture all kinds for all purposes—guarantee our gas bags absolutely unequalled in quality and construction. We make our own fabric—*rubberized silk or cotton.* Latter recommended on account of its unequalled *durability.* Prompt deliveries—*Goodyear Service!* Write for samples of fabric, and particulars.

Goodyear Rubberized Aeroplane Fabric

No *stretching* or *flapping* to cut down speed when fabric is dry. No shrinking to strain frame out of alignment when fabric is damp. No *fears* of danger due to rot, mildew and weakness when you are aloft supported by Goodyear *Rubberized Aeroplane Fabric.* This fabric is heat, cold and damp *proof.* The process by which it is *impregnated,* not merely *coated* with rubber makes it the most durable and the only *safe* and practical cloth manufactured.

Used exclusively by all nationally known aviators and manufacturers. Let us send you *important letters from three* famous aviators.

Goodyear Detachable Aeroplane Tires

A full line of single and double tube aeroplane tires with or without leather treads. Built for all American and Foreign-made machines. Extra thick treads, practically non-puncturable.

Our detachable Aeroplane Tires, built like No-Rim-Cut Auto Tires are most durable—bind rim in grip that resists severest strains on landing.

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To Try New Parachute

IN attempt to better the parachute jump of Capt. Berry from a biplane piloted by Anthony Jannus, at Kinlock Field, Missouri, last week, George Lapham will try to leap from George Beatty's Wright biplane, at Nassau Boulevard, L. I., sometime soon.

The leap is to be attempted from a height of 3,000 feet. The prachute which Lapham will use is an invention of A. Leo Stevens.

Stevens's contrivance is designed as an emergency aerial life-saving device. It consists of a simple parachute made considerably smaller than the apparatus now used by exhibition jumpers. It is fixed to the airman's back like a pack. The Italian hemp ropes of the parachute concentrate on a lifebelt which the airman wears around his body.

The moment he drops from the aeroplane he pulls a small ring fixed to one side of his waist. This immediately releases the folds of the parachute. As the body shoots downward the parachute is expected to open and gently lower the airman to the earth. Except that it is smaller in size the parachute is exactly like the contrivance used in connection with balloons. Stevens believes it will check a fall from a height of 50 feet.

Shearman Wins Cup

H PERCY SHEARMAN, ex-president of the Williams College Aeronautic Society, is announced as the winner of the Stevens Trophy, which was offered by A. Leo Stevens, the famous aeronaut, for the greatest distance made by a balloon in the East by a pilot, outside of Stevens himself.

The trip with which M. Shearman won the trophy was from Pittsfield, Mass., to Auburn, Maine, a distance of 189 miles.

The second longest trip was made by Mr. Benton, who sailed from Pittsfield, Mass., to Lakewood, N. J., a distance of 170 miles.

Aviation Jottings

John Verrept, the famous operator of the Borel-Morane monoplane, is expected to arrive in this country shortly.

France is going ahead with the question of aviation maps and will soon have a completed one of the Southwest. The map will be one of the most complete of its kind and will give the description of grounds suitable for landing and for ascent as well, and every detail of interest to aviators.

Charles Hamilton, while flying between Sacramento and Maryville, California, claims that he covered the distance of 42.7 miles at an average speed of 78.9 miles per hour. The flight was made on March 15th.

Miss Matilda Moisant, while flying at Shreveport, La., on March 17th, narrowly escaped meeting the fate of her brother. It is reported that the accident was caused by gliding at too steep an angle. Miss Moisant, fortunately, was helped from the wreck unhurt.

Miss Harriet Quimby sailed abroad on March 7th, and will probably compete with some of the French women aviators while there. She will also do some writing.

While flying at the meet at Montgomery, Ala., the early part of March, Paul Peck, soaring at an altitude of about 2500 feet, circled the dome of the old capitol. Brindley and Louie Mitchell also made flights with Wright biplanes.

Phillips W. Page has been doing considerable flying with his Burgess machine at Daytona Beach. The smart set are all anxious to try a flight with Page, and he is quite willing to oblige.

C. F. Walsh, who has been flying in the South and Southwest, will go to Augusta, Ga., to the Signal Aviation School to demonstrate the "war" aeroplane sold the Government by the Curtiss Co.

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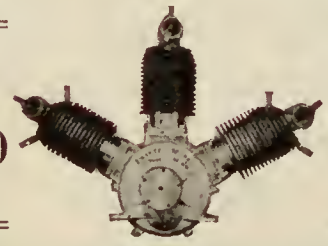
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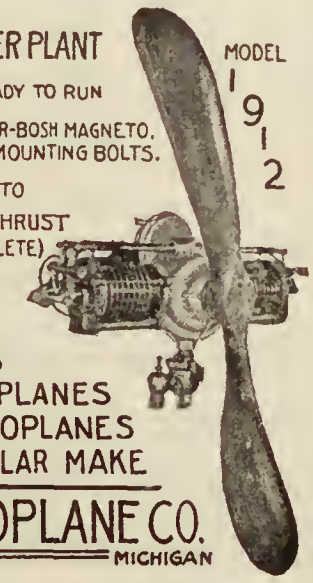
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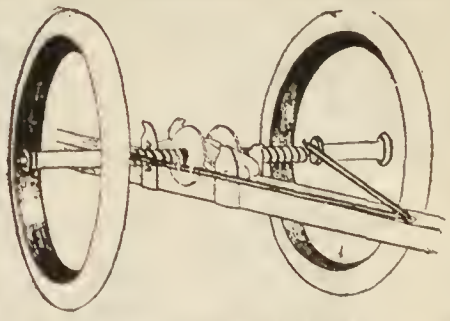
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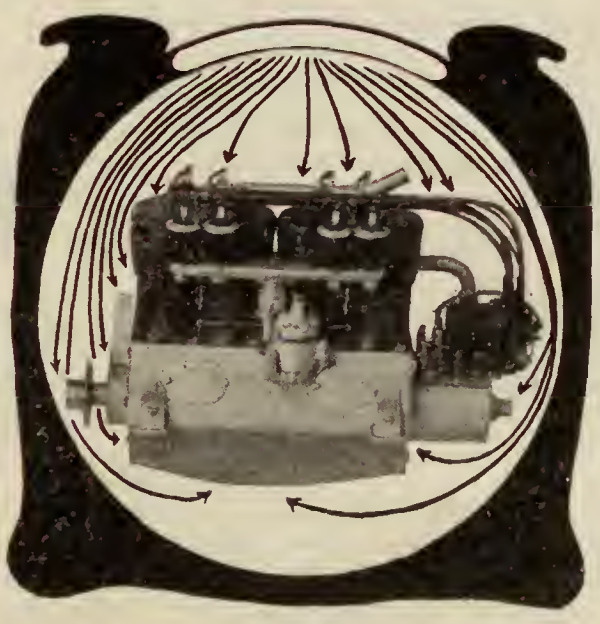
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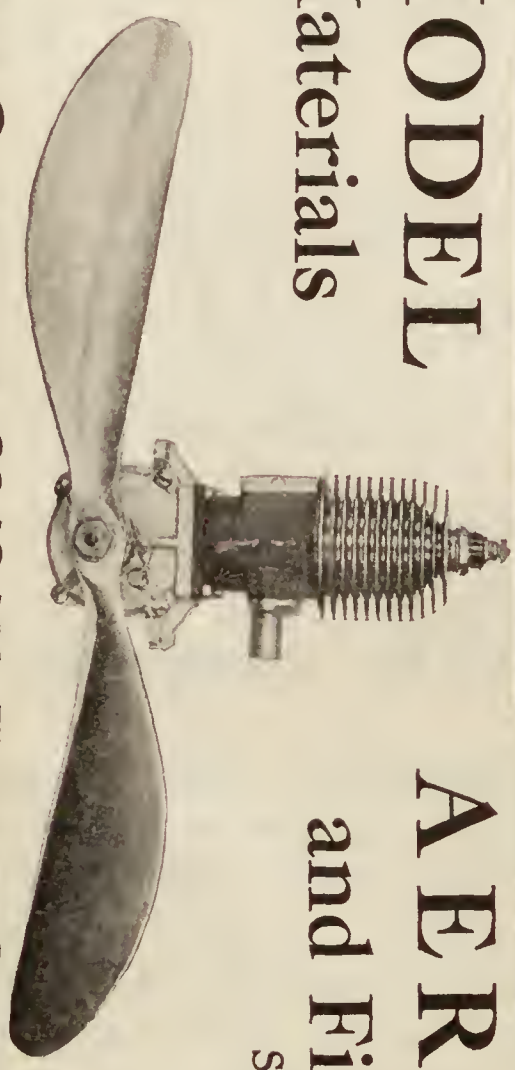
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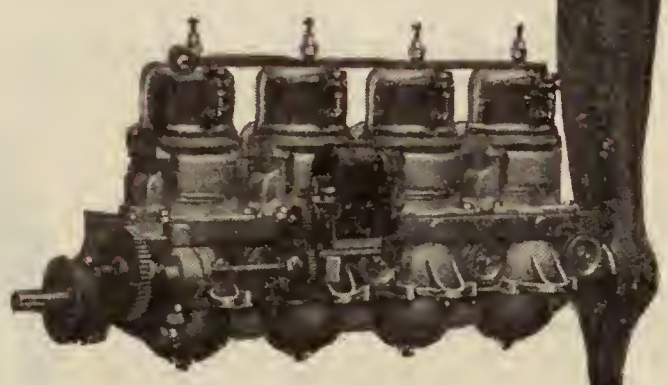
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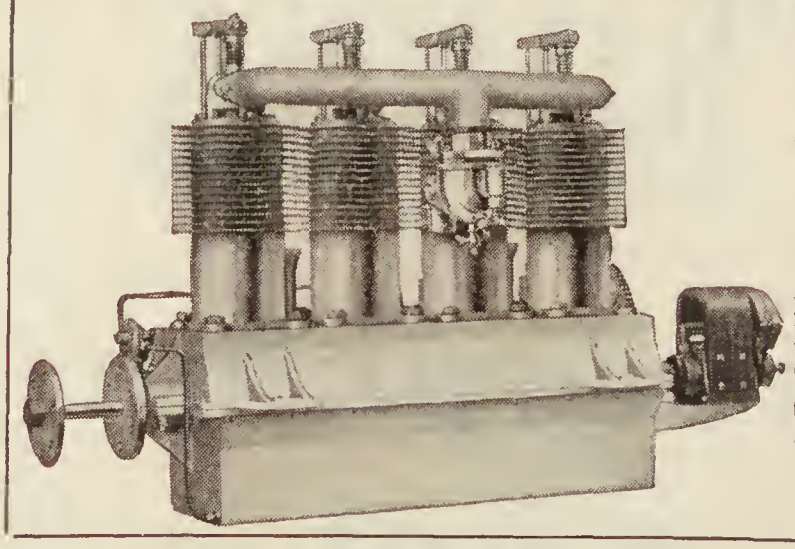
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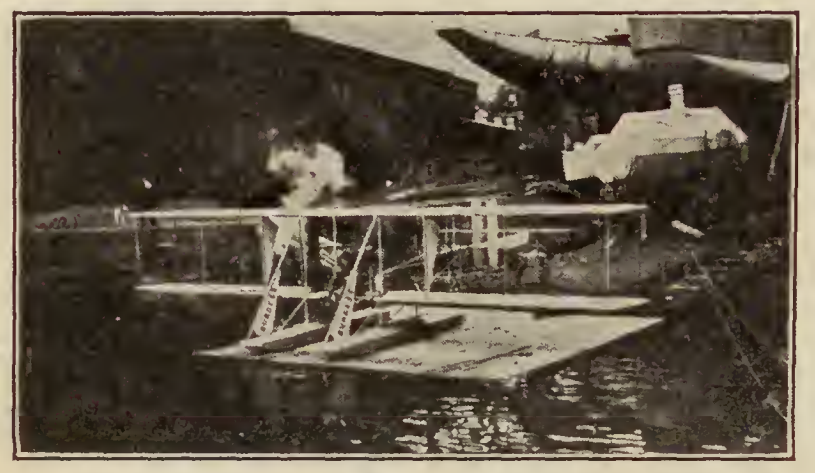
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The purpose of the Society of Aeronautic Engineers is the production of pupils who shall be thoroughly equipped to construct and further the practical development of the Aeroplane and Hydro-aeroplane; to know engines and how to care for them; and be proficient in the art of Flying.

The Business Management

of the Society of Aeronautic Engineers assures its success and permanency. It is managed by a man who has had ten years' experience in the managing of a school, which, during this time, has grown to be the second largest of its kind in America.

The Faculty

Francis J. C. Ferris, aeronautical engineer and aviator, has charge of the Construction and Flying departments. Mr. Ferris has constructed a large number of Aeroplanes that have flown, probably more than any other one man in America. The machines built by his pupils have all flown and are still successfully flying. Mr. Ferris has probably done as much independent flying as any aviator in the country in connection with the instruction of his pupils. He will be assisted by a number of experts in Aeroplane and Propeller construction and Licensed Pilots when the Flying Course opens in the Spring.

A Few of the Distinguishing Features of Our School

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First and largest Aero-Construction School in the World.

First and only School in the United States whose students have built Aeroplanes that would fly. Every machine built by our students is now successfully flying.

First School to issue a Diploma as Aeronautical Engineer.

First School to have pupils from foreign countries.

First exhibitor in connection with an aviation sale in America.

First to use metal outriggers and controls.

First to braze turnbuckles.

First to have a machine on fire in the air.

First to have Aeroplane Fire Insurance.

Positions

Indications are that the summer of 1912 will be the banner year for exhibitions, cross-country flying, races and contests of every description; therefore, the demand for mechanics, constructors and aviators will be great. The salaries in this business are larger than in any other field. You may earn from $50.00 a week and up as a constructor or mechanician—from $50.00 to $500.00 a day and up as an aviator. The demand for men with the practical training received in our School is greater than we can supply. The Aeroplane business is now in its infancy—Millions of Dollars will be invested in it in the near future and those first in the field will reap the large returns.

Among the Hundreds of Press Notices

given our School the "New York American," of April 9, 1911, seems to best comprehend our purpose. It says: "One of the most interesting developments connected with aviation is the successful operation of an Aeronautical Training School—the Aeronautical School of Engineers. Pupils are gradually advanced through construction and then initiated in the theoretical phases of the science. Eight Biplanes which fly have already been built by the students. The purpose of the School is to turn out efficient constructors, mechanicians and aviators. The demand for expert help and trained aviators is woefully beyond the supply and extraordinary returns are assured to those who seriously undertake the work."

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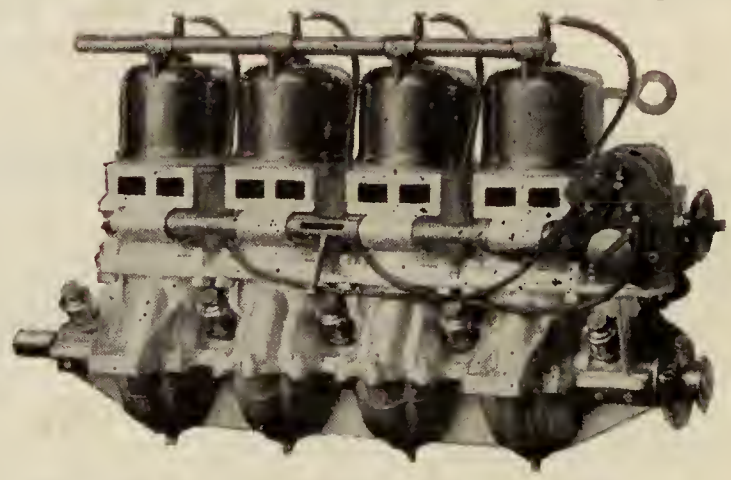
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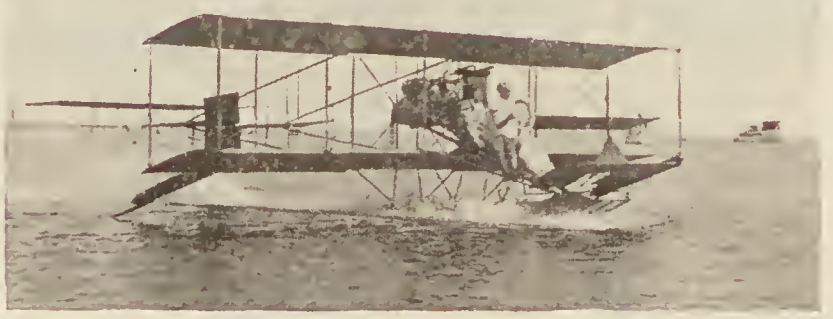
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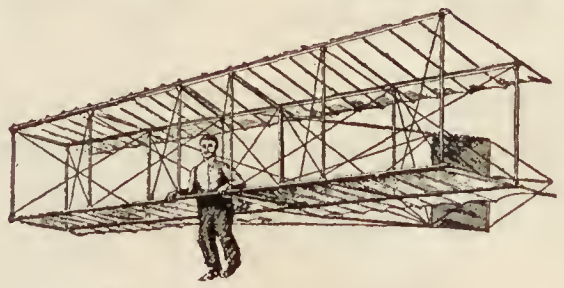
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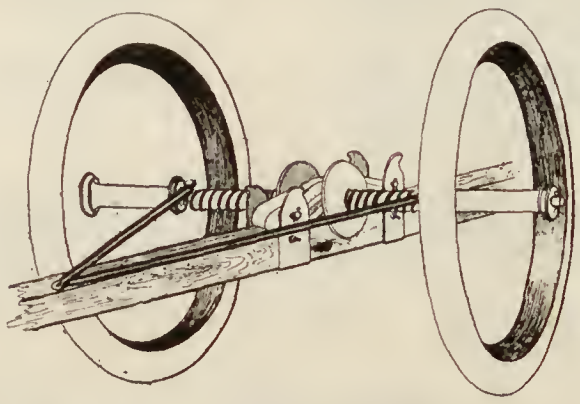
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CONCERNS that need expert aeronautical engineers and mechanics or aviators; and managers or organizations who wish the services of competent aviators, are invited to communicate with the Aeronautical Society.

We have just established a Service Bureau for the purpose of bringing the reputable employer or manager in contact with people who can give competent services.

We do this work without any charge whatever in behalf of our members. We thoroughly investigate the capability of every person or organization we recommend.

Members who wish employment in aeroplane industries or who wish engagements as aviators or who wish to fill flight exhibition dates are requested to communicate with us at once.

All communications will be treated as confidential.

If there is anything any member wishes to sell or trade or if there is anything you wish to secure that you cannot locate, register your requirements with the Service Bureau.

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Fly Magazine

The National Aeronautic Monthly

VOL. IV MAY, 1912 NO. 7

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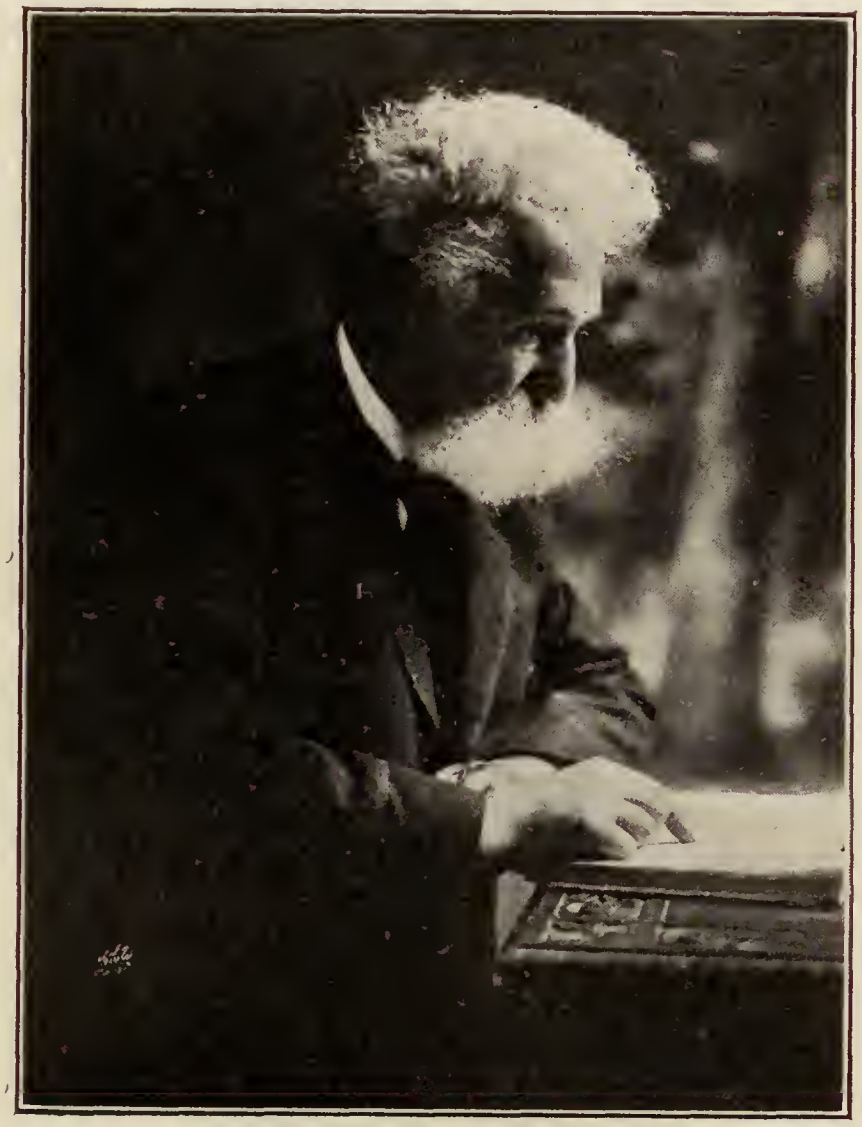
Aeronautics and the College Curriculum

Should This Science Have A Place There?

Written Especially for Fly by Hudson Maxim

ORIGINALLY, education, like fine raiment, was decorative. Ornament has always preceded utility in dress. The same thing has been true with education, and although no longer true to the same extent, it is still largely true.

In most countries of olden times the people belonged to the king. In Sparta all young men were state property. It was Spartan state policy to own the individual in order to train him and make him useful as a soldier. Even nowadays in times of war, all countries exercise a similar right of eminent domain over the individual, and citizens are, when necessity demands, drafted into military service.



Hudson Maxim

It is not so strange, then, that in Sparta, when war was an ever-menacing contingency, that the right of eminent domain of the state over the individual should be perpetual also.

In Germany, at the present time, even in times of peace, every able-bodied young man must serve two years in the army, it being held by the German government that he owes this service to the state. In war time every able-bodied citizen is likely to be called to take up arms.

The military training which German young men receive—discipline, respect for authority, alertness, self-confidence, consciousness of duty, athletic development,—entirely aside from knowledge of the war game and the use of arms, is of inestimable value in all after life.

Our free school system in the United States is based on a similar recognition of the rights of the state to take control of individuals during a certain period and to compel them to educate, train, and fit themselves for useful citizenship.

A little more than a hundred years ago, a few leading spirits in America and France popularized the belief, which awoke in the mind of Marcus Aurelius during his meditations, that there is such a thing as inalienable human rights. The wakened consciousness in the popular mind led to the American Revolution and the French Revolution.

Previous to that time the state took but little interest in the welfare of the individual. It was not well recognized that the welfare of each citizen was the concern of all citizens of a commonwealth. The right to the ownership of property and the right to the ownership of one's wealth through all the long-drawn ages prior to that time, was believed a matter of accident of birth or of conquest. The awarding to the individual the right to control and own his own earnings was the greatest prize ever offered to stimulate the working genius of this world, and it has been the most fruitful of general good. So fruitful it has been as to lift the world more and to advance the human race farther toward millennial civilization and enlightenment during the past hundred and fifty years than it had previously advanced in all the long centuries since paleolithic man, armed with slivers of stone bound on poles with thongs of raw hide, hunted the giant mastodon over the glacial waste.

There is ample evidence, then, that just to the extent that the state is obligated to serve and protect the individual, so is the individual obligated to serve and protect the state, and that the interests and obligations of individuals and state are reciprocal.

It is largely due to the recognition of this truth that our schools are becoming more and more utilitarian. Young men are now educated less for show and more with a view to usefulnes.

The old-time classical course, with its long drill in the dead languages, elicited from the famous Robert G. Ingersoll the expression that "Colleges are places where pebbles are polished and diamonds are dimmed."

That which cannot be employed to some useful purpose is useless. Education is no exception. Learning that has no practical application to the needs of making a living is useless to those who have their living to make. The industrial arts and sciences are constantly occupying a more and more important place in the college curriculum.

The advent of aviation brings forward a new art, a new science, a new industry, which, in the college curriculum must have a place of prominence commensurate with its importance.

The young man who shall desire a course in aviation must be provided with the means and facilities for the acquisition of the knowledge and training he seeks.

Aviation is largely a mathematical science, and has the advantage of being a practical mathematical science—a science which affords an opportunity for teaching mathematics in conjunction with their practical application.

The strong appeal that aviation makes to the imagination is greatly in its favor, as a parcel of college training. Students generally learn with a rapidity in proportion to the interest they take in their studies. Aviation awakens an intensity of interest which transcends that of any other subject now taught in colleges.

There is in every manly young fellow a residue of the old martial spirit—a residue of the old dare-devil disposition of the warring past, when all men were soldiers and the soul was thrilled and fired with martial adventure.

The rivalry of baseball, and the strenuous strife of football, serve to unlimber the martial spirit in the hearts of young men, but these games do not require the scientific knowledge, coupled with daring, that is needed for the complete mastery of the science and art of aviation.

The manufacture of aeroplanes is destined to become a very important industry in the near future in every civilized country in the world. It is an industry which will require engineers and mechanicians of unusual skill, while a mastery of the yet unsolved problems in aeroplane construction and in the navigation of the air will afford exceptional opportunities for ambitious young men with inclination and aptitude who otherwise would never have an opportunity of becoming engaged in it unless aviation formed a part of their school training.

It matters not whether the flying machine is to become most useful as a vehicle of common travel or to have its greatest application in sport, or yet as a war engine, enough has already been accomplished amply to warrant the future of aviation. It has come to stay, and must be reckoned with.

Furthermore, our government must seriously take up the science of military aeronautics or we shall be soon relegated far to the rear. We ought to have a West Point for aviation,—a school of military aeronautics.

This country should not trail along behind the other nations of the world. It would not be enough to keep abreast of the nations. We ought to lead them all. There is a wide popular misunderstanding about our relative position among the nations today as a military power. There is a feeling of security wholly unwarranted by the facts.

Our standing army is quite negligible. We should have at least half a million men thoroughly trained for immediate mobilization and service. We have but 75,000 regulars and 120,000 militia.

If this government were to take up military aeronautics with the same earnestness and zeal that is being exercised by the German government, the industry would receive an enormous stimulus.

The American Congress should immediately appropriate $10,000,000 for the establishment of a school of aeronautics, and for the development and perfection of the aeroplane for military purposes. Were this done, the stimulus that it would give to related industries and to the wealth-producing energies of the young men of the country would result in the creation of wealth far in excess of the expenditure.

Ten million dollars appears like a very large sum. It is a very large sum if an individual were to expend it, unless he were a hundred millionaire. But it is not a large sum for the United States Government to expend, when the enormous advantages and benefits to the community at large are taken into consideration.

Aviation is a subject which wealthy philanthropists should give careful consideration. Those who are looking for a good opportunity to found a chair of learning that shall be especially beneficial to rising generations, cannot do better than to turn to aeronautics.

——

Holland in Gordon-Bennett

The Dutch colors at the Gordon-Bennett race it is rumored will be carried by Henri Winjmalen, who is now chief pilot for a German monoplane company.

It is reported that this particular type of machine is one of the most speedy, and it is said that Winjmalen has recently made a flight of one hour and a half's duration at the rate of more than ninety miles an hour.

THE AERO CLUB OF PENNSYLVANIA



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OFFICIAL NOTICE.

The stated meeting of the **Aero Club of Pennsylvania** will be held in Room A, Bellevue-Stratford, on Friday evening, May 3, 1912, at 8 p. m. The revised By-Laws will be presented for the final action of the club.

GEORGE S. GASSNER,
Secretary.

CLUB NOTES.

The stated meeting of the club was held on March 29th. A number of interesting matters were discussed, and much enthusiasm was displayed by the members present.

The new burgee, 18 feet long, the design for which was recently adopted by the club, was displayed on the wall of the room and was universally admired. The ground is dark blue, and the wings and keystone in bright yellow, with the witch in black. The combination of the Pennsylvania colors is utilized in a most effective manner. Small pennants of the same design for the use of the members are equally striking. The large burgee is to be sent to the Aero Show in New York to be used in the decoration of the Palace.

The revised By-Laws were presented and read at the meeting, and will be sent to the members so that they can be finally acted upon at the May meeting.



Photo, Courtesy of H. M. Neeley
De Yonckheere at League Island

The Banquet Committee reported that upon full consideration they had decided that it would not be practicable to hold a banquet at this time.

One of the new pennants was presented by the club to Mr. Victor De Yonckheere, the Belgian aviator, who is a member of the club, and is tuning up his Bleriot at the League Island Navy Yard. He at once fastened it to his machine, and in a most beautiful flight carried it to an altitude of 2,500 feet.

A most interesting lecture was delivered in the Y. M. C. A. Auditorium on April 11th before the Aero Club of Pennsylvania and its invited guests by Mr. James H. Hare, the veteran photographer of "Collier's Weekly." An audience that taxed the capacity of the spacious room greeted the lecturer, and was delighted with the wonderful pictures thrown upon the screen and the charming manner in which they were described by Mr. Hare.

Burgess Starting Device

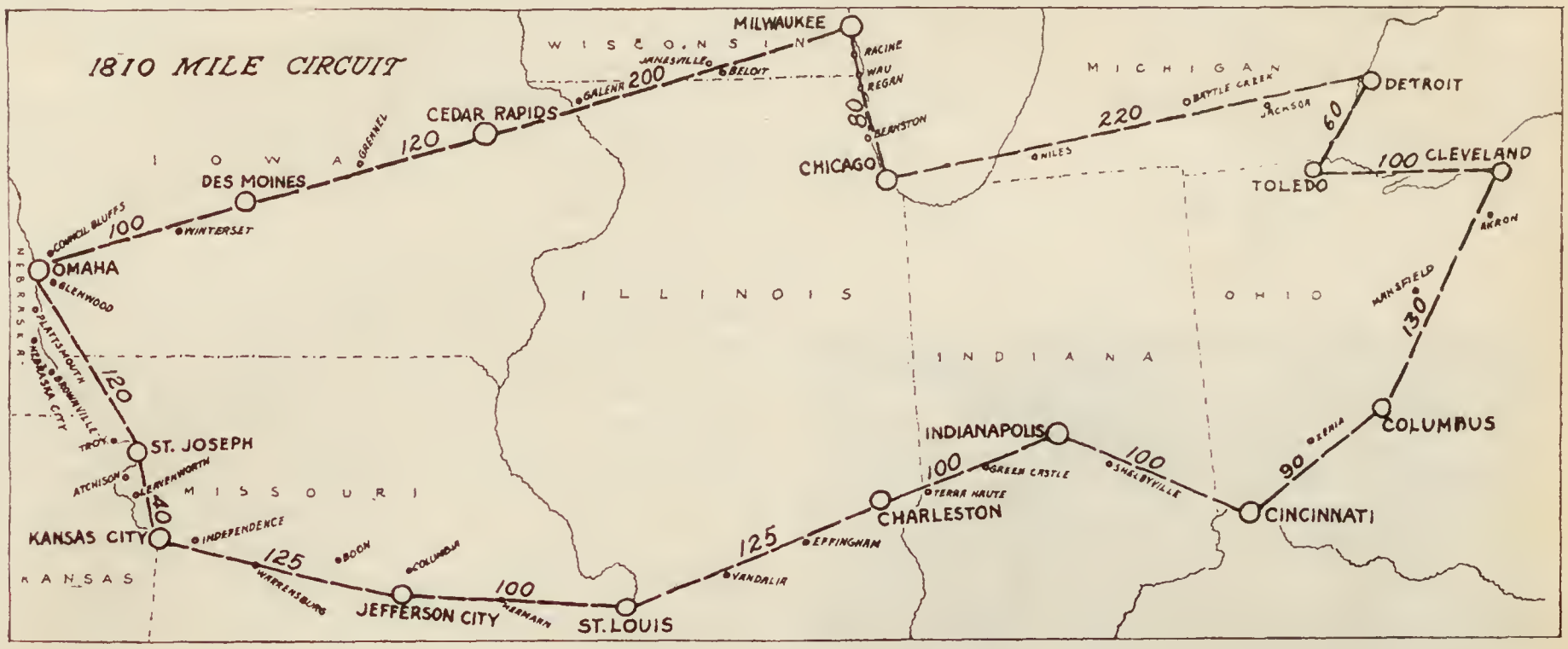
WHILE the need of a starting device on an aeroplane has always been noticeable, it is especially necessary in the hydro-aeroplane. Very soon after launching the first Burgess hydro last fall, this new device for starting was applied. It has been used about six months, and with a number of small changes in construction now represents the most advanced method of starting an aeroplane engine, simply because it is the simplest in operation and least liable to get out of order and is absolutely fool-proof.

Its operation is simple. The operator is supplied with a starting handle, and when ready to start his hydro closes the throttle or retards the spark, and, leaving his seat, steps back into the plane and inserts same in a socket attached to the device on the large sprocket.

A quick lift of this handle turns a four-cylinder motor past two compressions and starts the motor under low speed, which hardly moves the hydro through the water. The operator has plenty of time, therefore, to resume his seat, grasp his levers and before the aeroplane is speeded up with the throttle.

Aero Clubs Plan Big Circuit Race

Course to Cover 1810 Miles



Map of Proposed Circuit Race

A CIRCUIT race to be known as the Great American Circuit is being organized in the Central West by a number of the aero clubs.

It is expected that this race will cover a course of more than 1800 miles and will be flown the latter part of August or in the early days of September.

Chicago will be the starting and finishing point of the circuit. The route proposed is Chicago, Milwaukee, Cedar Rapids, Des Moines, Omaha, St. Joseph, Kansas City, Jefferson City, St. Louis, Charleston, Indianapolis, Cincinnati, Columbus, Cleveland, Toledo, Detroit, Chicago.

Stops will be made at each city where there will be a "control" or station and possibly at other cities situated along the route.

The circuit is to be open to licensed pilots of all nationalities who will be free from injunction under the Wright Patents.

The prizes will probably amount to $100,000 and will include a grand prize of $25,000; second prize, $5,000; third prize of $2,500.

Among the other prizes to be given are:

Prizes for first and second machines to reach each control.

A special prize for American built and flown machine first to arrive.

Special prizes for:

(a) Least horsepower to complete course;
(b) Passenger carrying;
(c) First to flash a wireless message to a control;
(c-1) Greatest number of wireless messages delivered;
(d) Best map made en route and description of conditions, etc.
(e) First aeroplane fitted with stabilizer to arrive;
(f) Most completely equipped machine.

The Great American Circuit should thus be greater than any of the circuits held last year in Europe and will include features never before included in aerial contests. All the circuits last year were essentially races for speed between two points and the prize went to the fastest. No effort was made to bring out the qualities of aeroplanes other than speed. Thus while the splendid performances of Vedrines, Garros and other clever airmen created a great deal of enthusiasm and interest, there was really little of practical value brought out that the world did not know or that would bring the aeroplane nearer to the average man for general use.

In the Great American Circuit every inducement is given to bring out and demonstrate the practical side of aviation.

Using less horse power; carrying passengers over a long distance; using wireless telegraphy for communicating from aeroplanes; using automatic stabilizers and less human element, and having aeroplanes fitted with scientific instruments for travel and devices to promote comfort—these are all practical features, which, when applied, will make the aeroplane cheaper, safer and a vehicle of service as well as pleasure.

Lee Hammond Back from the Philippines

AFTER a trip to the Philippines, China and Japan, Lee Hammond, the well-known aeroplane pilot, has returned to his home in Lynn, Mass., and will now probably forsake the aerial realms for good.

On Monday, April 15, he was married to Miss May Andrews, at Mineola, L. I., and has promised to give up flying. He will accept a good position with a trust company in Chicago.

Hammond is well known as a pilot of the Baldwin "Red Devil" biplane, and has won many prizes throughout the country.



Photo. Boston Photo News

Lee Hammond with His Presents

While in the Philippines, Hammond made a number of demonstrations with his Baldwin biplane for the benefit of the Philippine Government, which wished to impress upon the savage tribes the absolute supremacy of the Americans.

For this purpose some of the Igorrotes were brought down to Manila and permitted to witness flights. And as a final exhibition of skill Hammond took their chief, Gagaban, up to an altitude of 1500 feet. Lieut.-Governor Hale, of Galinga province, had charge of the proceedings.

As a token of his appreciation of the honor done him, Gagaban presented Hammond with his shield and battle-axe. It is said that it is the first time that an Igorrote chief ever parted with his weapons until death. A part of the history of the battle-axe is the inspiring claim that it has cut off sixteen heads.

While in Manila, Hammond made flights every day at the Exposition. He said the get-a-way was the worst he ever saw, being only 62 feet. He made one flight of 6000 feet over the leper colony, for the benefit of the lepers.

While Hammond was in China, it is said that the vice-president of the Chinese Republic took him into his office and offered the American a contract for a large sum of money to fly over Pekin and drop bombs among the Imperial soldiers. Before Hammond became interested the American Consul warned him that Chinese spies were following him and would murder him before he could get the biplane into the interior. Hammond was followed by spies for three days and watched until he left China.

John Verrept Meets Death

JOHN VERREPT, the young Belgian aviator, will not represent Belgium in the Gordon-Bennett race. He was killed near Versailles, France, on April 17, falling from an altitude estimated to be at least 2000 feet.

Observers declare that Verrept raised his hands from the controls and allowed the monoplane to take whatever course it would. Examination of the wreck showed that no wires were broken.

Friends of Verrept say that on the previous day he had a quarrel with his fiancee and threatened to take his own life.

Verrept was twenty-three years old.

This young Belgian aviator was the most daring of airmen, and with the Borel-Morane monoplane had made himself famous in a short time. He was one-time holder of the world's record for duration, and later secured the world's record for altitude with two passengers.

Verrept had a newly designed monoplane built by the Borel-Morane Company, equipped with a 140-h. p. Gnome engine, with which he expected to compete in the Gordon-Bennett.

He was to have come to this country shortly to join his friend and countryman, Victor de Yonckheere, the aviator who has been flying recently at Philadelphia. De Yonckheere received a cablegram early in March stating that he (Verrept) would sail for New York on March 20. Later, however, a letter came stating that, owing to some delay with one of the monoplanes, the date of sailing would have to be postponed.

Big Exhibit List for Aero Show

Well Supported By Manufacturers

GREAT hopes are being entertained for the first annual hydro-aeroplane race to be flown Saturday, May 4, over New York waters for a handsome trophy offered by Charles E. Spratt, head of the International Exposition Company. A rules committee is working on conditions that will give every machine an equal chance.

The entrants include Harry N. Atwood, Frank C. Coffyn, Walter Brookins, George W. Beatty, Hugh Robinson and Grover Cleveland Loening.

There will be a distance-speed contest without passengers, a passenger-carrying speed contest around the Statute of Liberty, bomb-dropping, quick get-a-way contests, accurate alighting, capturing free balloons, carrying despatches, etc.

The official headquarters for the day will be the Columbia Yacht Club, 86th street and the North river.

Visitors to New York will have ample opportunity of seeing samples of about every machine made in this country, as well as some of the principal foreign types. Makers not exhibiting, some of them, will have 'planes or motors to be seen at the Long Island fields, as the Gyro Motor Company is doing during show week. Lectures by aviators and prominent men in aeronautics, illustrated with moving pictures taken by Coffyn and Fowler from aeroplanes, and by slides, will be given twice daily, free to the public.

Following is the list of exhibitors at the Aero Show up to the time of closing the forms of this issue of FLY.

Aerostation.

A. Leo Stevens—small full-sized hydrogen balloon.
Goodyear Tire & Rubber Co.—model balloon and model dirigible.

Aeroplanes.

Max Ams Machine Co.—hydro-aeroplane.
American Aeroplane Co.—monoplane.
American Aeroplane Supply House—Bleriot-type monoplane.
Curtiss Aeroplane Co.—hydro-aeroplane and two models of biplanes.
Christmas Aeroplane Co.—biplane.
Gallaudet Engineering Co.—100-Gnome steel monoplane.
H. W. Jacobs—metal multiplane with 2 motors.
Queen Aeroplane Co.—"aeroboat" with Crane engine.
Rex Monoplane Co.—Bleriot-type monoplane.
Irving W. Twombly—monoplane, with pontoons, arranged for land or water.
The Wright Co.—6-cyl. hydro-aeroplane.

Motors.

Max Ams Machine Co.—M. A. S. motor.
Baby Engine Co.—engines for models.
Crane Co.—
Curtiss Aeroplane Co.—various Curtiss motors.
Frontier Iron Works—8-cyl. Frontier.
C. B. Kirkham—Kirkham six.
Roberts Motor Co.—50- and 75-h. p., 4- and 6-cyl.; also one 125-h. p.
B. F. Sturtevant Co.—4- and 6-cyl. motors and propellers.
H. L. F. Trebert Engine Works—6-cyl. rotary.

Fabrics.

Goodyear Tire & Rubber Co.—
Penn Rubber Co.—
B. F. Goodrich Co.—Lumina fabric.
Diamond Rubber Co.—

Miscellaneous.

E. J. Willis Co.—supplies.
Marburg Bros.—Mea magnetos.
Electric Speedometer Co.—tachometers.
W. F. Mangels Co.—teaching device.
Aeronautics.
Fly.
Aircraft.
Aero.
Scientific American.
F. A. O. Schwartz.
White Aeroplane Co.—models.
W. A. Crawford-Frost—model flying machine.

Loan and Historical Exhibits.

Curtiss 1909 Gordon-Bennett winner.
Burgess "Flying Fish."
Antoinette, by Harry S. Harkness.
Nieuport, by A. C. A.
Davis Aeroplane Gun.
Queen Company—wind tunnel in active operation.
New Army aeroplane with 70 Renault built by Burgess Co. & Curtiss.
Wright hydro-aeroplane of Frank Coffyn.
Henry Farman biplane of Clifford B. Harmon.
Morane monoplane, by Romaine Gressier.
Paris-Madrid Bleriot winner, by Paul Lacroix.
Deperdussin single seater, by George M. Dyott.
Chanute gliders from Aero Club of Illinois.
Zodiac dirigible car, by A. Leo Stevens.
Parseval airship, by Horace B. Wild.
Exhibit from the U. S. Weather Bureau.
Law's parachute, used in the jumps from the Statue of Liberty, Brooklyn Bridge, etc., recently, by A. Leo Stevens.
Assortment of balloon baskets, by A. Leo Stevens.

Questions and Answers

Owing to lack of space the Query Department, conducted by A. Roe Bugg, has been omitted this month. Queries will receive prompt attention and the Department will appear as usual in the June issue of FLY.

CUTTING loose from an aeroplane while about 1,500 feet in the air, F. Rodman Law, the parachute jumper, who has been using a parachute invented by A. Leo Stevens, dropped into the harbor of Marblehead Bay, on April 13. The machine used was a Burgess hydro-aeroplane and was piloted by Phillips Ward Page.

Fischer Wins International Hydro-Aeroplane Contest

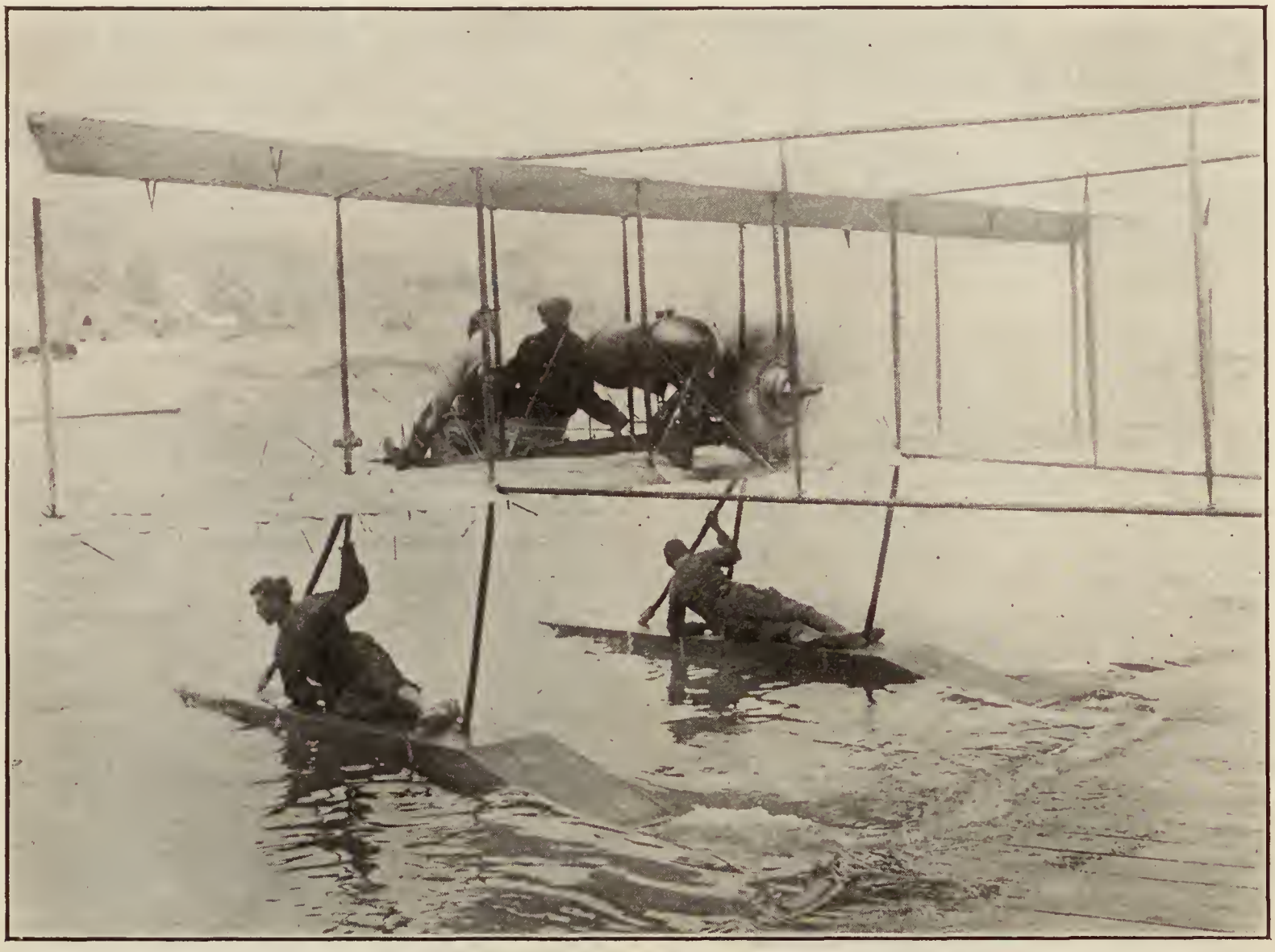


Photo. by Paul Thompson, N. Y.

Fischer, the winner, about to start on a passenger-carring flight

Lack of Passenger Capacity Defeats Robinson

Fischer, operating a Henri Farman hydro-aeroplane was the winner of the recent international hydro-aeroplane meet held at Monaco during the latter days of March. Eugene Renaux was second with a Maurice Farman hydro-aeroplane. Both, however, secured a victory over the American hydro-aeroplane, the Curtiss triad, piloted by Hugh Robinson, because of its limited passenger-carrying capacity.

The winner, a very large hydro-aeroplane, was able to carry at one time four passengers, against one borne by the smaller American machine driven by Louis Paulhan.

Robinson had gone into the contest only with a small exhibition machine, carrying no passengers, hoping for rough weather, in which he could fly to advantage, while the big surfaced French machines might be compelled to take shelter. Unfortunately for him the wind was calm most of the time.

In this country there has been no demand for machines carrying several passengers, as in the French military tests of last fall.

It is noteworthy that the winning French machines, like those of the Wrights, W. Starling Burgess and Frank T. Coffyn, in this country, are supported on the water by floats of the catamaran type, with two or more pontoons, while the Curtiss machine clings to the single pontoon.

The winning hydro-aeroplane of Henri Farman uses the double pontoons, each approaching in shape the Curtiss flat-bottomed single float. In addition, a small float of torpedo shape gives support to the rudder in the water. A similar contrivance was used on the Maurice Farman hydro-aeroplane, second in the contest. The Voisin Canard, which fell behind the American's, has three pontoons forward and one aft, flat bottomed, with decks arched like a submarine's.

Bleriot Reports Cause of Recent Monoplane Deaths

FOLLOWING the order of the French Government for the suspension of all monoplane flights by officers, until the death of Lieut. Seville had been investigated, Louis Bleriot made a report to the French Minister of War which has thrown considerable light on such monoplane accidents.

Bleriot said that when spectators claimed to have seen the wings of Chavez's monoplane fold down in the disaster that caused his death after his flight across the Alps, it was believed to be an optical illusion.

Examination of the wrecked monoplanes of Lieut. Lauthemaume and Lieut. Seville, however, showed that the guy wires had snapped above.

Bleriot says that it was then that he realized how the momentum of an aeroplane flying in a straight line and made suddenly to descend by a volplane would reverse the loading on the wing.

Says Bleriot:

"A machine moving horizontally will, when the motive power is diminished, descend by a parabolic path, which will be longer in proportion to the initial speed. If by a strong movement of the elevator the pilot transforms the trajectory into a straight line, slanting at a steeper angle towards the earth than the parabola, the machine is immediately subjected to a force from above. In order that the machine should make this descent to earth, which takes place more rapidly than that resulting from the gravitational influence of its own weight, a downward force must act upon the wings.

"There is no longer room for doubt that the deaths of Chavez, Blanchard and Lantheaume were caused, not, as has been believed up to the present, by the breaking of the wings, that have withstood their trials and tests of positive loading successfully, but by the failure of the upper guys, which have no strength to resist those forces coming from above.

"It is, therefore, necessary to test monoplanes with a top loading on the wings, so as to obtain a system of upper bracing that will be of corresponding strength to the lower bracing now in use.

"It is to be regretted that four deaths should have been required to pave the way to this solution, which must completely modify the design of aeroplanes."

Bleriot goes on to inquire what shall be the new factor of safety for these new forces. He concludes that "in practice, allowing for the rare occasions on which the upper guys are stressed, we can allow, for a factor of safety with lower guys, a factor of safety of three for the upper system."

To Try Parachute Drop Abroad

UNDER the patronage of the Nice Aero-Club, a sensational parachute experiment will be attempted some time this month.

An inventor by the name of Bonnet will ascend in an aeroplane to a great height over the sea. The aeroplane will be without a motor, and the lifting force will be furnished by a balloon, to which the aeroplane will be attached by a rope.

When the height desired has been reached, the rope will be cut and the aeroplane will naturally drop towards the sea.

At the moment the rope is cut a parachute, kept gaping by means of an inflated pneumatic chamber, and which is to be attached to the aeroplane, will be opened to its full width by the working of a lever. The movement of the lever will also automatically release the aviator from his seat and he will thus be lifted bodily from the aeroplane by the parachute and, it is hoped, glide down to the sea at a leisurely pace, while the aeroplane will naturally fall with a crash. The experiment, it is believed, will prove that if aviators will provide themselves with parachutes, in the event of their machines falling they may escape accident.

Miss Quimby Flies Channel

MISS HARRIET QUIMBY, the first American woman to obtain an aeroplane pilot's license, is also the first woman to pilot an aeroplane across the English Channel. Using an assumed name, Miss Quimby had her Bleriot monoplane wheeled out of the shed, at the Dover aerodrome, at 5 o'clock Tuesday morning, April 16, and at 5.30 she was flying high over the city in the direction of Calais.

At 6 o'clock she was seen over Cape Griz Nez, and soon after landed safely, at Hardelot, in France.

Miss Quimby states that she had a splendid trip in spite of the fog, and that she intends to return to England by air.

Miss Quimby has won many laurels in this country and this latest feat of hers adds another record to her long list of accomplishments.

IT is announced that the Contest Committee of the Aero Club of America has fixed July 27th as the date for the national balloon championship races at Kansas City. The aeronauts making the best showing in the contest will represent this country in the international race which is to be held this year at Stuttgart, Germany, on October 27th.

The Remarkable Flight of Henri Salmet

The Way the Frenchman Flies

By Earle L. Ovington, Licensed Aviator

THE remarkable cross-country flight of Henri Salmet from the Hendon aerodrome, in England, to the Issy aerodrome, in France, just outside of Paris, emphasizes what a remarkable cross-country flier is the Frenchman. In this country if we are going to make any extended cross-country flights, the aviator usually notifies the papers so that they can have their representative on the ground and take the proper pictures. Everything about the performance indicates that the aviator himself, and the public believe that a remarkable thing is about to be done. That is owing to the fact that cross-country flying is yet more or less of a novelty in this country. I am referring now, of course, to an extended cross-country flight, and not to a "joy ride" of half an hour or an hour.

Henri Salmet is the chief instructor of the Bleriot school, at the Hendon aerodrome, in England. On Wednesday, March 7th last, while talking with a few friends, he mentioned the fact that he would fly to Paris the next day, as he had business with M. Bleriot in Paris and he thought it would be quicker and pleasanter to go by aeroplane than in the usual manner.

Salmet started, on Thursday, March 7th, the day previous having coated his wings with a waterproof varnish so that the fabric would not be affected by the weather.

The coast guard over the English Channel notified him that this treacherous body of water was free from fog, and so at exactly 7.45 with a light wind behind him, he left the Hendon aerodrome.

He rose rapidly to a height of 3,000 feet and then pointed the nose of his machine in the direction of Paris steering entirely by map and compass. He flew in this way for one hour and forty minutes without seeing anything other then the clouds and the wings of his own machine. In describing his flight, he says that the sight was marvelous, and to use his own words he states: "I think absolutely the best something I have seen in my life."

He had not gone far before the clouds began to trouble him, and he kept on climbing until he reached an altitude of about 7,000 feet. Bear in mind that all this time he was steering by compass and map, as he could not, of course, see the land.

The clouds now cleared away and flying was easier, although the velocity of the wind had increased, and the "remous" (air holes we call them) had increased, and he described the rest of his journey as a long struggle. At last he came in sight of the Eiffel tower, and he knew that the military training grounds, which are used as an aerodrome, and known as Issy les Moulineux, were just outside of the fortifications of Paris. After some difficulty he located the aerodrome, and made a long volplane to the ground.

He landed without difficulty on the Issy field, and walked over to the large hanger of the Astra Company, and inquired of one of the mechanics, "Where are the Bleriot hangers"?

"On the other side of the field," replied the mechanic, and added, "Can you tell me any news of the English aviator who should fly from London to Paris"?

"The English aviator is me," replied Salmet, and they shook hands.

And so it was that after a remarkable cross-country flight, there wasn't a single person to greet the intrepid aviator.

Salmet got Bleriot on the 'phone and asked when he could see him. Bleriot informed him that about three or four would be convenient. Salmet replied that he would be far off by then.

"Why"? asked Bleriot.

"Because I want to get back to London today," replied Salmet.

Bleriot then came down to the Issy field with M. LeBlanc and some reporters.

When Bleriot found that Salmet had crossed the channel from Eastbourne to Dieppe, he was much pleased. This was the first time that this had been accomplished, as the channel is widest at that point. The other aviators who crossed the channel did so at almost its narrowest part.

After lunch Salmet stated that he would return, but Bleriot tried to dissuade him because of high winds at the time. He started, however, at 2.15, and was soon over the Seine on his way back to London. He was forced to land at Berck Plage on account of an empty gasoline tank, and by the time he got it filled it was too late to start.

A friend of his put him up over night, and so that he would not start in the morning without his knowledge, he locked him in the room and did not release him until five o'clock the next morning. A hospitable way to treat a guest, was it not?

Salmet started for Hendon, which is just outside of London, with a fairly brisk wind and a little fog. After he had flown two miles, his engine started missing; the magneto had gone wrong. He was forced to land in order to make the proper adjustment, and got started again at 10.12. He crossed the channel from

Cape Griz Nez to Folkestone, and in a few minutes was flying over English soil.

The wind increased and it began to rain. Soon the rain almost blinded the aviator, and the wind was so high that he says it took him a quarter of an hour to go four miles. Seeing a good landing place, he came down and found that he had dropped unceremoniously upon Chatham.

He stayed there the rest of the day and started next morning at a quarter past six in a very bad wind.

Misfortune seemed to follow him, for he had hardly gotten well under way when his motor stopped, and he was forced to land in a football field near Beckton. The field was a small one, and in landing a side gust of wind threw the machine out of its course and it smashed into a goal post.

The distance to Hendon being short, the machine was taken to the aerodrome in a wagon, but the aviator had practicaly completed the trip. He had made the trip from London to Paris and returned, and did it in such an off-hand manner as to excite the admiration of those who knew the circumstances.

I understand that there have been substantial prizes offered for cross-country flights in this country. I firmly believe that aviation exhibitions from an aerodrome have lost so much of their novelty that large crowds will not congregate to see such flights, but the future of exhibition flynig lies in cross-country work. That is the state of affairs in England and in France, and I expect it soon will be this season in this country.



Photo by Paul Thompson, N. Y-

Two famous London to Paris flyers shaking hands. Henri Salmet (left) and Gustave Hamel (right)

FLY MAGAZINE

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Advertising rates will be furnished on application.

Hydro-Aeroplaning

COMBINING as it does the pleasures of motor-boating and the exhilaration of flight, together with a high margin of safety, it is not surprising that men of wealth are rapidly becoming devotees of the sport of hydro-aeroplaning.

Records of flights during the past weeks point to the rapidly growing interest in the hydro-aeroplane. From every point of the compass comes news of the successful flights of the hydro-aeroplane.

Europe, too, has been stirred by the rapid advance made by America in this branch of the aeronautic industry.

It was awakened by the arrival sometime ago in Europe of the representatives of a progressive American aeroplane company. This little party included a now famous operator of the hydro-aeroplane, and a hydro-aeroplane as well. While abroad this machine was demonstrated before the Russian, Italian, French and German Governments. On the strength of exhaustive tests which the hydro-aeroplane fulfilled, a number of sales were made.

Aside from the hydro-aeroplane as a sporting proposition, it has tremendous commercial possibilities.

The hydro-aeroplane that can carry six or eight passengers will be in demand at every summer resort situated near water. In addition it will be a transportation proposition of no mean proportion.

The first company to put such a machine on the market will be sure to benefit in the coin of the realm.

The Aero Show

DO not forget the Aero Show to be held in the Grand Central Palace, New York City, May 9-18.

The exhibits will include the latest developments in aeroplanes, motors and accessories. In addition the loan exhibits will contain types of aeroplanes never before shown in this country.

You, Mr. Reader, owe it to yourself to be present; you owe it to the aeronautic industry to lend your appreciation to their efforts to advance the science of aviation in America.

FLY will be one of the friends there to great you.

This will be the greatest Aero Show ever held in America up to the present time. You cannot afford to miss it.

Come and bring your friends!

Aviators' Licenses

NEITHER local nor national clubs confer licenses on automobile drivers; river and ocean pilots do not receive their licenses from a motor-boat or yacht club.

Is it any more reasonable to have aeroplane pilot licenses granted by a club of aviation enthusiasts?

We think not.

Such work should be carried on by the Government.

This is a matter that cannot be ignored much longer.

Somebody is going to get real peevish one of these days and start something.

The aviators themselves will finish it.

Proper Legislation

LET the aero clubs remember that the power to govern aviation in the United States should be delegated to a federal department and not State boards or commissions.

The automobile laws of the various States of the Union should warn every sane person against urging the passage of State laws to control aviation.

The tag nuisance has done more to propagate that impolite language known as profane, than the collar-button under the chiffonier.

Scores of difficulties have arisen from each State having its own automobile laws.

Surely you are not going to duplicate this error by encouraging State laws for aviation.

Why not start a movement urging the Federal Government to investigate the aviation laws of the foreign governments and to take steps for such laws as may be necessary, at this time, in the United States?

Aviation and Colleges

ON another page of this issue of Fly, Hudson Maxim sets in clear and careful paragraphs the relation that the science of aeronautics bears to the college curriculum. Mr. Maxim is well qualified to treat this subject and his words should have weight with all interested in the advancement of knowledge along general lines as well as specific subjects.

"Aviation is largely a mathematical science, and has the advantage of being a practical mathematical science," says Mr. Maxim.

It is obvious that the development of aviation in this country, has been, up to the present time, largely a matter of experiment and it must continue to be experimental until we have in the draughting room of the large aeroplane manufacturing concerns, men who have been trained scientifically to solve the problems of the air; men whose knowledge is based upon definite results, rather than experiment.

To equip a laboratory for aeronautical research as well as the draughting room of an aeroplane factory, requires trained men. These are not to be taken from the workshop nor are they to be taken from among the aviators themselves. Each of these has his own work and problems to solve and they differ in some ways at least from those of the designer.

To fill this need there is a demand for college trained men who have devoted their scientific efforts to the problems of the air. The college days of a man's career are those when he should learn to think for himself. How many really do is a question not fully answered. Perhaps this is, in many cases, due to the fact that the student's course is not as interesting to him as it should be.

This does not however apply to the science of aeronautics for there is a certain amount of romance and daring in this subject that places it far above all the other.

Let some one of our many philanthropic men establish a chair of aeronautics in some one of the large colleges and it is safe to predict that the results will soon bring the other colleges to the realization that they too must have such a course.

Already letters are coming into this office asking for information regarding the colleges that have a scientific course in aviation and it will not be long before the demand for such a course must be recognized.

Man has not yet conquered the air but he has laid the foundation for a successful result. The absolute conquests lies within the realm of science. Scientific training is necessary to bring the aeroplane to its highest point of efficiency. The colleges and universities must be called upon to furnish the men qualified to complete this work. Where marine engineering has called for its scores of recruits, aeronautic engineering will call for its hundreds.

The science of aeronautics offers to ambitious young men, opportunities such as come but once in several generations.

The problems of the air are yet unsolved. Those men who have had the advantage of the subject of aeronautics as a part of their college curriculum will be best fitted. The conquerors, for no one man can do it all, will come from among those men whose college training has included the careful study of the science of aeronautics.

The Letter Box

To the Editor of Fly.

Dear Sir:—You are to be complimented on your able editorial, "Pilot Licenses," in the last issue. The registration of machines and the licensing of aviators *should be* under the control of a Federal department. Such a law would make more harmonious interstate travel.

However, the Government has not now sufficient police to make it effective.

Hydro-aeroplanes will more easily come under government control without special legislation, as the Customs House or the Treasury Department has the machinery already at hand.

The present rules for granting of certificates are ridiculous. Foreign governments, as well as our own, have found it necessary to make their own more rigid conditions, with physical requirements. The French government now has a general Federal law controlling aviation.

Yours truly,

A. E. Roe.

New York, March 30, 1912.

Bath, N. Y.
April 14, 1912.

Editor of "Fly,"

Dear Sir:

The article on "Pilot Licenses," in the April issue of your publication, has struck the keynote.

Never has an article been printed more to the point or one which shows how ludicrous is the present system of issuing licenses.

I have been flying continuously since September 7th, 1909, and have no license. During my whole career I have never met with an accident worthy of note.

From September, 1909, until June, 1910, I was flying the Thomas biplane equipped with a 22-H. P. (A. L. A. M. rating) engine weighing 240 pounds. This in itself is worthy of note.

During the season of 1910 I filled twenty-five engagements; never once disappointing the crowd.

Mr. Curtiss personally turned over to me two of his best contracts which his men were unable to fill.

When Mr. Curtiss recognizes my ability as an aviator, is not this enough to warrant my being issued a pilot's license?

This winter I have taught five men to fly. Who is better able to judge their ability; some armchair aviator who does not know an aeroplane from an airship, or a man with two years of flying experience?

Your idea of issuing a charter to aviation schools of repute is excellent. Let us hope that this is the seed, and that it will bring forth fruit.

Sincerely yours,

WALTER E. JOHNSON,
Not a Licensed Pilot.



A DEPARTMENT FOR ALL INTERESTED IN MODELS AND MODEL FLYING

Conducted by the Junior Editor — Model Editor, Philip T. McCutchen

NOTICE

In the December issue of FLY, *1909, the National Junior Aero Club had its inauguration. It was the first of its kind in the United States, and fathered hundreds of model clubs in all parts of the country.*

To the early beginnings of this organization may be traced the tremendous interest that has lately developed in models and model flying.

FLY *now intends to inaugurate some improvements in its model department, and will also enlarge it if a sufficient number of the members of the National Junior Aero Club express such a desire.*

In order to facilitate the new arrangements which the Model Editor has in mind, all members of the National Junior Aero Club are requested to send their names and addresses to the Editor of FLY, *without delay, together with date of joining, if possible. When you write the editor, tell him if you would like the department enlarged.*

Beginning with this issue FLY'S *Model Department will deal with all model news of interest and will give descriptions of the latest successful flyers developed at home and abroad.*

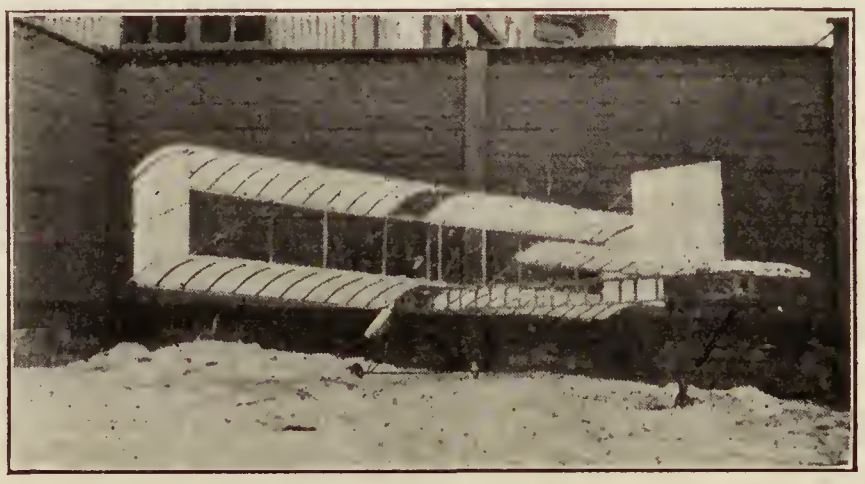
The next issue will contain news of interest to all National Junior Aero Club members.

New Gasoline Driven Model

The motive power of this model motor and an 18-inch aluminum propeller. The wing spread is 8 feet and the over-all length of the model is 6 feet.

The running gear is constructed entirely of Shelby steel tubing, fitted with solid steel, rubber tired wheels running on ballbearings.

All the woodwork is spruce and the ribs are laminated. Lateral stability is secured by fitting side panels in ends of the biplane cell. The front wheel is loosely fitted to the fuselage and is cushioned with rubber strands to absorb head-on landing shocks. For the sake of convenience in transporting, the planes are made in two sections.



McCutchen Powered Model

Aero Club Meet

AFTER several postponements because of high winds, the Model Aero Club, of New Jersey, which has its headquarters in Newark, N. J., held its official contest for the Durant Medal on March 16, at the Speedway, Irvington, N. J.

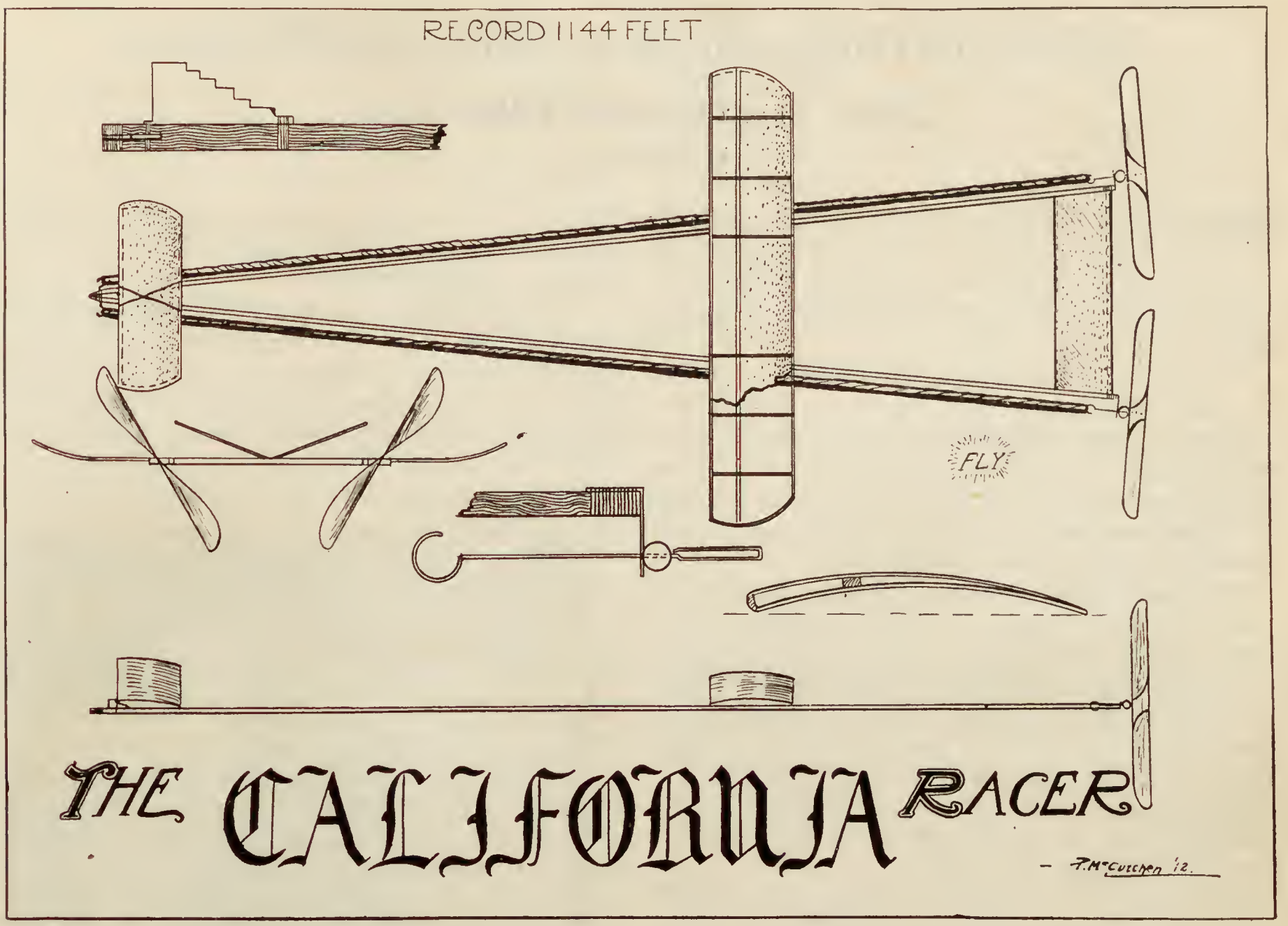
Francis Walton, one of the twenty entrants, finished first with a distance of 930 feet and a duration of 40 seconds.

Perry Foster was second with 856 feet and a duration of 36 seconds.

Egbert Lott was third with 649 feet and a duration of 22 1/5 seconds.

The winner, Francis Walton, has offered to put the medal up for another contest, the conditions of which will be decided at the coming meeting of the club.

The second and third prize winners will have their percentages added to the annual percentage list for the Club Championship Pennant.



New Pacific Coast Record

WORD has been received that a new distance record for the Pacific Coast has been made by R. G. Robinson, of San Francisco, Cal. The distance is officially rated at 1144 feet and the duration at 58 seconds. Robinson states that the interest on the coast is increasing rapidly and a large model meet will soon be held in his vicinity. Several members of the San Francisco Club have been experimenting with hydro-aeroplane models and have met with marked success. We hope to secure descriptions of these flyers for publication and for the benefit of hundreds of our friends interested in our Model department.

Answer to Junior Inquiries

Model described in December issue was the Ding Sayers monoplane.

A wooden plane is the best for all around use.

Information regarding model clubs given on request, address MODEL EDITOR. (Send stamped envelope.)

Care of FLY Magazine, Bulletin Building,
Phila., Pa.

Cheap Ballon Inflation

IF reports from Europe are accurate, ballooning is about to become one of the cheapest of all modes of transportation.

It is said that in France an aerostat has been devised with which ascensions can be made at the cost of about $1.

A balloon of 50,000 cu. ft. capacity is equipped in the neck with a petrol stove, the heat from which can be regulated by a tap. Inflation coats cost about 62 cents for petrol, and with this a short trip can be made.

Gaudron announces the completion of designs for a combined gas and hot-air balloon.

Gaudron's scheme involves the employment of an ordinary balloon provided with a balloonet, the latter for inflation by hot air from the liquid fuel stove. With this arrangement it should be easy to make a voyage last six or eight days. Now, apart from the promise of cheap ballooning due to the use of the new Montgolfière, Gaudron's scheme points the way to possible important developments in dirigible work. It is worth the closest attention and experiments, for it may be destined to add greatly to the practicability of the airship.

Helps and Hinderances to American Aviation

Need of a National Laboratory

By F. W. Anderson

NEARLY every science, in its infancy, experiences two conflicting elements, one which tends to aid its development and one which tends to impede it. These two may rightly be termed "helps" and "hinderances"

The future of every science and innovation of almost any sort, partly depends upon the comparative strengths of these existing elements and the attention which is paid to them respectively.

In those which grow with the greatest rapidity, the "helps" are given impetus, which, in turn, has a retarding tendency to the "hindrances."

In those which dwindle away to be heard of no more (it might be here stated that in a progressive country these are very few in number), the "hinderances" are usualy given impetus by neglecting the "helps."

Aviation, in America and all other countries, contains two such elements at the present time. Apart, these would either hasten the success of aviation until it reached its final perfection, or would banish it entirely from the earth, reserving for it only a proper place in the history of mankind.

The science of aviation is the abstract root, so to speak, which has made the existence of these two modifying elements possible. The attitude of every individual toward aviation, serves to place him with one or two other of these. For example, the designer, the builder and the aviator signify the helping side; the public illustrates that which seems to impede its development.

If aviation conquers public opinion the task is made easier; whereas if the opinion of the public turns against it, it is made difficult in the extreme.

As strange as it may seem the public plays a very important part in such a science. The ignorance of the public in regards to the problems which must be overcome, and those which have already been overcome, makes the task the more difficult for the side of advancement.

If aviation conquers publicity, the task of future development becomes an easy one; if publicity conquers aviation, the problem is made more difficult.

There exists numerous ways by which either of these conditions might come to pass. For instance, should aviator, builder and designer show proper advancement, the side of progress will be doubly reinforced by the addition of semi-conservatists, who advise improvement when it is reasonably sure to safely benefit.

Should development lag, or fatalities increase beyond reason, the reign of skepticism—that strongest bar to the progress of the human race—will rise and destroy its existence.

The government, because it is the government of the people, is also counted with the list of impediments. Government appropriations are appropriations of the people, suggested and sustained by them. Therefore when a government gives improper support, or no support, to a science or innovation which tends to be of universal benefit, it seems to indicate an indisposition on the public's part.

In case it should seem strange to you that the public is concerned, just as its predecessors have struggle for supremacy, cast your eye over the history of every great innovation. Recall how people laughed at the steamboat, locomotive and the telegraph; how they termed the auto and trolley car passing fads; how they called the telephone a useless play-toy.

Aviation is in the same stage that each of these has survived, and with the proper management, grit and push it can easily come out on top, so far as the public is concerned, and just as it's predecessors have done.

The amount and rate of development of a new science or industry in various countries plainly shows the relative progressiveness of the people which inhabit these countries. This is a general rule which is well illustrated by aviation. The country which shows the greatest progress in aeronautics is usually found to be well toward the lead in every other way. Just as France has headed the list with submarines, wireless and other scientific innovations, so is she well advanced in aviation. The lesser civilized nations, from Austria and Turkey down to China, bear almost the same relation toward aviation as to other modern improvements.

Because a science was originated in a certain country, is no reason why that country should retain the lead in its advancement. The practice of artificial flight was practically commenced in America, but at the present stage of development America has by no means retained the place which it thus gained. However, it is not so far behind as it might have been under other conditions.

To give American aviation greater impetus, which it rightly deserves, it should be developed along lines of theory. American aviation has seen flying and building, but not a sufficient amount of development.

Abroad, almost every week, brings forth some

Calbraith Rodgers Makes His Last Flight

CALBRAITH PERRY RODGERS, the first aviator to accomplish the trans-continental flight, fell to his death at Long Beach, California, on April 3, within 300 feet of the spot where he ended his flight from New York a few months ago.

Rodgers had been making daily flights preparatory to going East to fill engagements. It was during a trial flight that the accident occurred.

He was flying about 200 feet above the breakers when his biplane tilted sharply and began to drop. Spectators could see that Rodgers was trying to control his machine, but he was unable to do so and it crashed to earth with him, striking in about two feet of water. Rodgers was crushed beneath the machine.

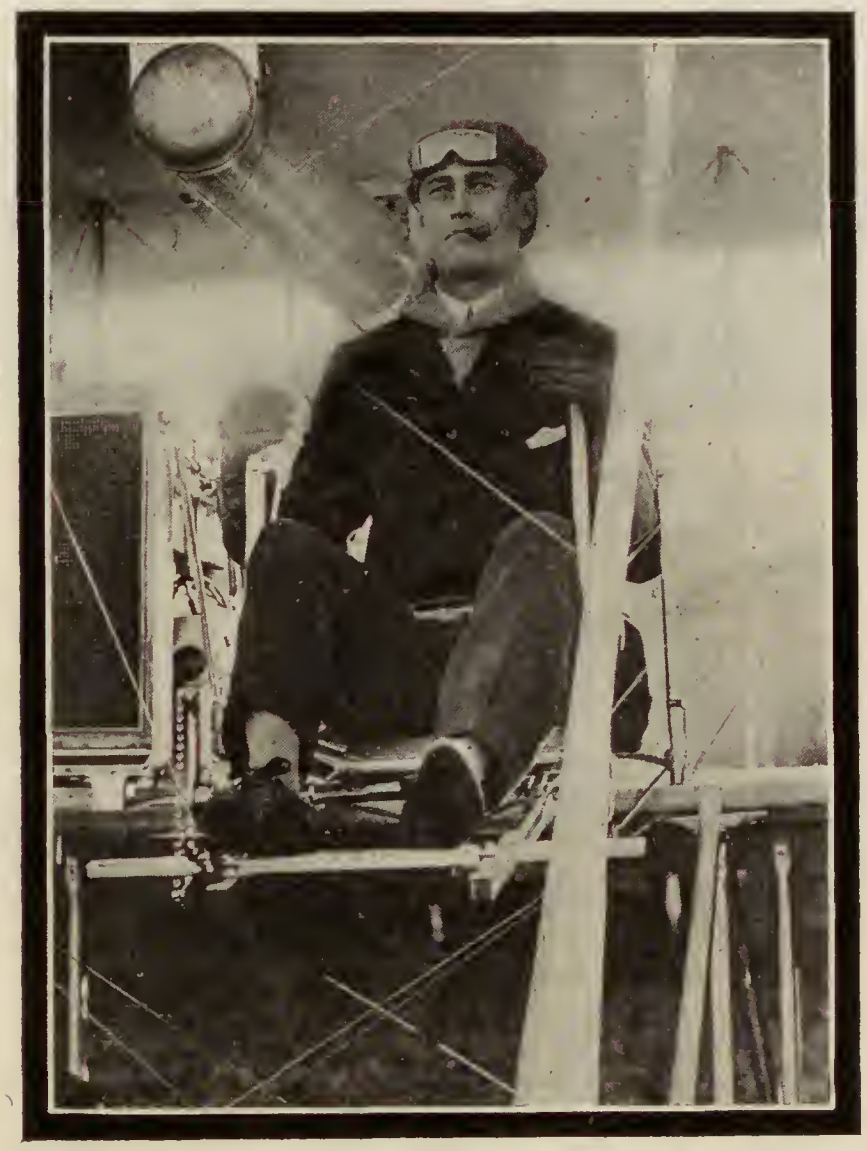


Photo. International News Service

Calbraith Perry Rodgers

While making his trans-continental flight, Rodgers fell many times. His friends said at the time that it was due partly to the fact that he was deaf and could not tell whether the engine was running properly or not, and partly to the fact that his sense of equilibrium was not as well developed as it should be.

An intimate friend of Rogers said at the time of his death that he believed that he was diving to make a landing and did not pull the machine up in time.

"Galbraith Rodgers was a victim of circumstances that he strongly advised against." So says C. W. Seiberling, vice-president of the Goodyear Tire & Rubber Company, Akron, Ohio, who entertained the aviator last summer while on his coast to coast flight through Akron. "I asked Rodgers what he thought was the reason of so many deaths in aviation," said Mr. Seiberling, "and he replied that it was due to foolhardy feats, and that if aviators would confine themselves to straight flying the death list would be cut down considerably."

Rodgers was born in New York on February 12, 1879. He is a cousin of Lieut. John Rodgers, U. S. N., who is also an aviator, and a son of the late Capt. Rodgers, U. S. A. He was also a grandson of Commodore Perry. He attended Columbia University and the University of Virginia. He was the tallest aviator, and stood 6 feet 3 inches. He had an impediment of speech and was deaf.

Rodgers began his lessons at the Wright school in Dayton, Ohio, June, 1911, and was granted a pilot's degree by the Aero Club of America on August 7th of the same year.

His main achievement before his trans-continental journey was exhibitions given at the Chicago meet when he captured the prize of $8000 for duration. He remained aloft twenty-seven outof thirty and a half hours of flying time.

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Continued from page 14

new type of air-craft, which claims a new improvement over some existing type. The countries where the most has been accomplished along these lines are in the lead also in practical standing. This goes to show that theory is more necessary than practice to a young science. Theory is evolved from practical experiments, and practical experiments must be resorted to, to attain the verification of this theory.

The best thing America could do for aviation would be to establish a great national experimental center, a huge laboratory, where aeronautical experiments could be carried on with adequate equipment and with more promising results in every way.

It is the opinion of the writer that such a step would do most to help the "helpers" and hinder the "hinderers," and that no long time would elapse before America would lead the world in the greatest of modern sciences, "The Problem of Artificial Flight." Then we could proudly claim that this step was attained by an institution "of the people," established "by the people and for the people" of the United States.

TRADE TOPICS



Hugh Robinson in flight in the Curtiss hydro-aeroplane

Meeting of Manufacturers Association

The Aeronautical Manufacturers Association, formed in 1911, comprising more than a score of aeroplane, motor and accessories makers and dealers, and publishers, will have its largest meeting during the coming Aero Show in May.

It is planned to have a dinner during the show at which representative firms in the industry will attend.

A vast amount of work is to be accomplished. Conformity and certainty in the customs and usages of the trade, the adoption of a federal law to govern the registering of machines and the granting of certificates, the standardization of material to an extent; the securing of proper transportation rates, the finding of means for the restriction of dangerous practices; and investigation and exposition of frauds, etc., are all stated objects of the association.

Jannus at Bleriot School

Antony Jannus is making a reputation for himself and the Benoist biplanes which he is flying at Kinloch Field, St. Louis, Mo. His stunt of flying cross-country with a passenger and parachute apparatus, and then dropping the passenger and his parachute while in full flight, has secured for him international fame. Incidentally, the Roberts 6-X motor proved its reliability in this test, as the Benoist biplane is engined with a Roberts.

Philadelphia School Busy

The Aeronautic School of Engineers, which has opened a school of aeronautics in Philadelphia, is now preparing to build a hydro-aeroplane. They have just finished a biplane which follows the lines of the Curtiss to some extent, and expect to open their flying school with this machine about May 1.

The machine is equipped with a Fox De Luxe motor and it is expected that they will equip other machines in the course of construction with a similar make of engine.

From a construction standpoint the school has one of the best equipped factories in this section, and the amount of work that is being done by the students shows promise of a big season.

There are at present enrolled in the school fifteen pupils, including one from Japan and one from Greece, and the number is increasing rapidly.

Mr. Keeler, president of the school, reports that already inquiries are coming in for engagements, and plans are under way to enlarge the faculty for the Flying Course.

This school, which is the first of its kind in Philadelphia, is building up a careful and successful school, teaching the art of aeroplane construction.

It marks the beginning of the aeronautic industry in Philadelphia, and the support that it is receiving shows that such a school properly conducted can become an established institution.

American-made Monoplanes

The American Aeroplane Supply House, known throughout the country by its product, Bleriot-type monoplanes, has been making changes in the new 1912 model. Attention has been directed by them particularly to strengthening, as much as possible, those parts that are subjected to a heavy strain. The machines sold thus far have been fitted with whatever engine the purchaser desires.

The planes are covered on two sides, the cloth being sewn into a bag and glued and tacked to the wings on the bias. The ribs are thoroughly reinforced at junction with spars by the use of tape, and before cloth is put on the woodwork of the wings is shellaced to prevent moisture from getting into the woodwork. A strip of rattan moulding is tacked top and bottom of each rib, after the covering is on, in one continuous piece. The cutting edge of the wings is of sheet aluminum; while the trailing edge is of oak.

The wings are supported beneath, with steel straps, running from the forward spars to the landing chassis, while steel cables are used to support the wings from the rear spars. The outer cables used to warp the planes are run over a pulley attached to the warping arm of the lower pylone to which pulley cable is bolted, to prevent slipping. The inner steel cable, runs over a loose pulley of the pylone.

The forward part of the fuselage is entirely encased with aluminum sheeting, in addition to which the machine is equipped with an aluminum hood which gives a neat and racey appearance, and protects the operator from the wind and cold. Every precaution has been taken to prevent any oil or gasoline escaping from the tanks or their connections, so as to eliminate any possibility of danger from fire. To prevent this aluminum sheeting separating, the engine from the tanks has been provided.

The speed of the engine is controlled by two levers which are attached on either side of the bell control itself, and can be operated without removing the hands from the wheel. The power can be shut off instantly by pressing switch button which is attached to the 8-inch mahogany wheel of the bell control. For the convenience of the operator hand holes have been provided in this wheel.

All the eyebolts, turnbuckles, and other bolts and nuts used throughout the entire machine have been made especially to dimensions of chrome nickel steel. All turnbuckles are fitted with lock nuts.

Besides single seaters, the company is prepared to manufacture passenger-carrying, racing or military monoplanes. Both the passenger-carrying and the military monoplanes will be equipped with double controls, which enables both the operator and passenger to operate the machine.

They are putting out a handsomely illustrated catalogue of Bleriot-type monoplanes.

A Live Supply House

One of the busiest places on lower Broadway is the office of the New York Aeronautical Supply Company. Stop in to see them and you will find them busy with orders.

Wheels, steel tubeing, tires, and boxes of smaller parts will be found all ready to go out by the next express to all parts of the United States. And by the time the expressman can get there to take the packages and boxes away the busy proprietors will have a new lot of orders all ready to go out. Promptness is their motto and they certainly allow no time to slip by unemployed.

They have recently published a new catalogue devoted exclusively to aeronautics and it takes front rank with any yet published.

It is handsomely illustrated on both covers with halftones of the office and factory, and contains plans of both the Bleriot monoplane and the Curtiss biplane. In addition to this every part of these two machines is listed separately with the prices for each part, and they are also sold complete by this company.

Engines, and aeroplane parts and accessories are illustrated in this catalogue with cuts so that every one who secures a catalogue can see exactly what he is buying.

1912 Maximotor Engine

In its main principles the new 1912 Maximotor follows the latest and best engineering practice. But its designers have incorporated a number of features that appeal especially to the air-man.

While the engine is a good example of the light weight aeronautical type, its lightness has not been attained by cutting down the cross-sections of parts to extremes. The joining together of parts where possible and the elimination of others not absolutely necessary, is the Maximotor solution of the weight problem. This method also serves to eliminate the chances of engine trouble through numerous, complicated parts. The Model E Maximotor, without magneto has approximately 170 parts, or 100 without counting bolts and nuts.

The Maximotor firm find it necessary to go to Europe for the highest grade chrome nickel steel, such as is used on the leading automobile and aeroplane engines there. The bolts that hold the cylinders to the crankcase, fasten the ball bearing housings to the crankcase, and clamp the connecting rods about the crankshaft, as well as the crankshaft itself are all of chrome nickel steel.

Accessibility is strongly emphasized. The unscrewing of a cap exposes the valve and valve seat. The crankshaft, connecting rods, and the whole interior mechanism can be reached by loosening the two thumbscrews of a handhole cover. The camshaft can be taken out in 20 seconds. The whole engine can be disassembled in 40 minutes.

Maximotor makers have found, among other things, in a long series of tests, that 25 per cent. additional power is gained by the auxiliary exhaust portholes, which also assist greatly in the cooling, and take the strain off the exhaust valves.

The hollow-bored, 2-inch crankshaft, with a strength of 150,000-170,000 lbs. per inch, is specially heat-treated and ground to accuracy within a thousandth of an inch. It runs on three ball bearings, one at either end to take the thrust and one in the center. The end bearings have 12 hardened balls of 5/8-inch diameter and the center bearing has 23 balls of 1/2-inch. Between the center bearing and the shaft is a tight-fitting ring in two sections. The ball bearings are imported from Dusseldorf. "Burning out," so common with long bearings, is eliminated by ball bearings, which also cut down friction.

The propeller flange is tapered to fit the crankshaft, driven by key and fastened by a hollow, special steel nut. This makes it impossible for it to loosen.

In block tests with a 7-ft. diameter by 3 1/2-ft. pitch propeller, the Model E Maximotor has given 420 lbs. thrust.

Standard Aviation School

The Standard School of Aviation has for superintendent of their factory and school, Francis Raiche, until recently a well-known fixture at Mineola, where he has very successfully taught aeroplane construction and flying ever since Mineola has been used for this purpose. Mr. Raiche is a

member of the Aeronautical Society of New York, which honored him with a silver cup for being the first member of the society to build a plane that would fly.

Mrs. Bessica Raiche has inaugurated a women's class at the school and a number of pupils have already enrolled and are taking a lively interest in the work. Be it remembered that Bessica Raiche is recognized as the first woman in Ameica to fly a machine. For this the Aeronautical Society gave her a gold medal. This distinction is a rather enviable one and it looks as though with such efficiency at the school and factory end of the business, that the Standard Aviation Company will be able to make good to a marked degree.

Sloane Ocean Flight

His Royal Highness, the Duke of Connaught, Governor General of Canada, and Premier Borden will officially start the Sloane aeroplane on its attempted flight across the Atlantic Ocean next August. Word to this effect was received yesterday by telegram from Dr. J. C. Cadegan, at Glace Bay, N. S. The Royal party, with other high Canadian government officials, have announced that they will be in Glace Bay at that time. The Canadian Government is deeply interested in the trans-oceanic flight and is making preparations to provide a warship patrol.

Dr. Cadegan, a wealthy resident of Glace Bay, is making preparations for the flight in Canada. Some time during this week he will have a conference with John E. Sloane, president of the Sloane Aeroplane Company, of 1737 Broadway, at Montreal. They will have a consultation with the Ministers of War and Militia for the Dominion.

Dr. Cadegan has already made arrangements for the accommodation of the staff that will go to Glace Bay to take care of the aeroplane. He has also provided shelter for the aeroplane. A bungalow on the Mira, a beautiful Nova Scotian summer resort, has been placed at the disposal of the aviators and guests. It is expected the start of the trans-oceanic flight will be made from what is known as Marconi's Table Head. The first stop will be made at Newfoundland. August has been chosen as the time for the flight, because a careful study of the weather charts has revealed that this is the most ideal season of the year.

New Accessories Catalogue

One of the things indicative of the growth of the aeronautical industry is the new catalogue of aeronautical supplies put out recently by the E. J. Willis Co.

This brochure contains a complete list with descriptive cuts of every article that could possibly be used by builders of aeroplanes, together with planes of the Bleriot monoplane and the Curtiss and Farman biplanes.

As one of the pioneer firms in the aeronautical supply business it is not surprising to find their catalogue up-to-date in every particular.

Expanding Pitch Propellers

R. O. Rubel, Jr., and Company, have attracted considerable attention with their "Expanding Pitch" propellers. These propellers are designed by E. T. Hutchins and it was through the experiments, with a wind wagon, of E. T. Hutchins and his brother, who is a professor at the University of Illinois, that they were able to obtain the data with which to build these propellers.

They are built up of a combination of laminated Spruce, Honduras and African Mahogany, Walnut or Ash.

Dressler Gets Patent

On April 3, the Patent Office granted a basic patent to R. Dressler, 2975 West 8th street, Coney Island.

The following claims are included in the patent:

1. Means for launching a flying machine in the air.
2. Means for allowing landing.
3. Horizontal and vertical guidance.
4. Means for propulsion.
5. Automatic propelling means flexing.
6. Automatic lateral balance.
7. Automatic forward stability.

In order to obtain these specific claims it was necessary for Dressler to demonstrate his invention with small models. The patent was applied for in 1900, but at that time the Patent Office believed the inventor to be of unsound mind and would not consider the patent.

However, since a demonstration has been given, the Patent Office reversed its former opinion.

Dressler states that as long as a motor is used in combination with soaring power to launch the apparatus, he will license a limited number of operators.

The use of the flying machine without the motor and propeller, Dressler says, will be allowed only to the Government and about six others, for demonstration purposes.

Another London to Paris Flight

GUSTAVE HAMEL, the First Aerial Postman of the United Kingdom, has added to his fame by flying, on April 2, from London to Paris with a woman as a passenger.

Leaving the Hendon aerodrome with Miss Eleanor Davis as a passenger in his Bleriot monoplane, Hamel rose at 9.30 A. M. and at 10.50 A. M. passed over Dover at an altitude of 2,000 feet.

A few miles from the shores of France the petrol supply ran low and Hamel was obliged to come to earth, landing shortly before noon to the southeast of Cape Griz Nez.

After the wind had died out a bit about four o'clock in the afternoon, Hamel and his passenger resumed their flight toward Paris, arriving at Issy-les-Moulineaux at 5.55 P. M.

Miss Davis received a rousing welcome on landing at Issy. On being presented with a bouquet she said:

"I am afraid I was a useless passenger. I undertook to work the pressure pump, but I had never handled one before. As a result we had to come down hurridly at Ambleteuse. Indeed it was a piece of luck that we didn't drop into the sea. While I was sitting in the machine waiting for Mr. Hamel to come back from the village, a customs officer appeared and asked if we had anything to declare. I said: 'I declare that I am cross to be sitting in the middle of a field instead of whirling through the air to Paris.'"

Miss Davis is the first of her sex to cross the English Channel via aeroplane.



Big Money In Ballooning

Ballooning has been taking gigantic strides. For advertising and exhibition purposes, as well as for racing, the balloon holds out wonderful opportunity. Own a balloon. Have it built the *Goodyear Way*. We build balloons complete even to the installation of engine and parts, if desired. Goodyear Balloon construction is the result of endless foreign research to which we have added our own famous rubberized cotton or rubberized silk fabric. We can make any special fabric. Quick Shipments, guaranteed quality and money saved are the elements that make *Goodyear Balloon Service* the most satisfactory service you can get anywhere in the world.

Goodyear Rubberized Aeroplane Fabric

GOODYEAR
Balloons
Aeroplane Accessories

From the Pacific to Atlantic is the record just made by R. G. Fowler who was brought through without mishap by fabric as good at the end of the trip as at the beginning—*Goodyear Rubberized Aeroplane Fabric.*

Impregnated thoroughly with damp-resisting *rubber*, which is superior to paraffine or varnish. This fabric is *weather-proof* and the most durable and the safest aeroplane fabric you can buy.

It does not deteriorate—it is also the lightest for its strength, and the most economical. Used by all leading air men and manufacturers of Aeroplanes. Ideal for Hydro aeroplanes.

Goodyear Detachable Aeroplane Tires

Built like Goodyear No-Rim-Cut Auto Tires, these are also the most popular tires for their purpose. Wrenches and strains don't loosen them. Held on to the wheel-rim in a vise-like grip, these tires mean *safety* in landing. They are built of special fabric of amazing resiliency and strength. The most enduring, and the least expensive tire to be had.

Bleriot Type Rubber Shock Absorbers

You can now get this famous monoplane spring at home and *save money*. We are sole manufacturers in America. Only successful spring for monoplanes.

Let us tell you about our big line of Aeroplane Accessories and *Balloons*. Write today.

THE GOODYEAR TIRE & RUBBER CO., - - Akron, Ohio

Branches and Agencies in 103 Principal Cities.

Aero Club Lecture

ONE of the pleasant treats of the Aero Club of Pennsylvania, was the lecture given on Thursday night, April 11, under their auspices, by James H. Hare, the veteran correspondent and photographer of "Collier's Weekly."

More than five hundred persons crowded the auditorium of the Y. M. C. A. to hear from Mr. Hare of his adventures on land and in the air.

The story of his trip across New York in a balloon, with A. Leo Stevens as pilot, was probably one of the most thrilling of all, despite Mr. Hare's effort to minimize the dangers that they passed through.

Then followed the story of the early exhibitions and attempts at flying on Long Island. The aeronautic portion of the lecture was brought to a close with slides made from photographs taken along the Mexican Border during the recent Army maneuvers there in the spring of 1911. These pictures were made from the biplane "Laredo," which was the name given Mr. Collier's Wright by the citizens of Laredo.

A very fine slide was shown of Mr. Hare and Brindley in the clouds over the Yale-Princeton football game last fall. The photograph, which was remarkable for its detail and beauty, was made by a Princeton man with a 3A kodak and was transferred to a slide by the well-known master of photography, William H. Rau, of Philadelphia.

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FOR SALE Foreign rights of a Basic Patent filed 1900, covering in specific claims the whole present and future of aerial navigation. Every Government must have this for military purposes and will make the possessor a wealthy man.

The specific claims cover wheels, propelling means, automatic lateral and longitudinal guidance, and propelling means called soaring power; also horizontal and vertical manual guidance. Investigate and apply personally to,

R. DRESSLER, No. 2975 West 8th Street, Coney Island

The latter part of the lecture dealt with Mr. Hare's adventures in the Japanese Army during their battles at the Yalu river and before Mukden, and the attack on and capture of Juarez in Mexico by the Revolutionary Army.

Before the lecture Mr. Hare was the guest of honor at a dinner given at the Bellevue-Stratford. Among those who sat down with Mr. Hare were William H. Rau, Oliver G. Simmons, W. N. Jennings, H. M. Neely and H. B. Hankins.

Classified Advertisements

They Bring Results

Twelve Words or less, 30c; additional words 2c. each. Cash in Advance

BUILD AN AEROGLIDER, and fly. Simplest, inexpensive. 22 feet wide. Designs, instructions, 50c. Aeroglider Co., Box 262, Grand Rapids, Mich.

GET CARL MYERS' latest, best system Captive Balloons; 300,000 passengers carried; millions attracted. Airships, gas-works, motors, accessories. Balloon Farm, Frankfort, N. Y.

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CAPITAL wanted to patent and build aeroplane that will fly three hundred miles per hour. Will give 49 per cent. of patents. I will guarantee to fly across Atlantic in twelve hours. Address A. Harbottle, 18 Eldert street, Brooklyn, N. Y.

YOUNG MECHANIC, age 31, weight 130, wants financial assistance to become an aviator. Excellent references, 7 years' practical all-round automobile experience. "Let me 'Fly' for you." F. J. Kollie, 3374 W. 32nd street, Cleveland, O.

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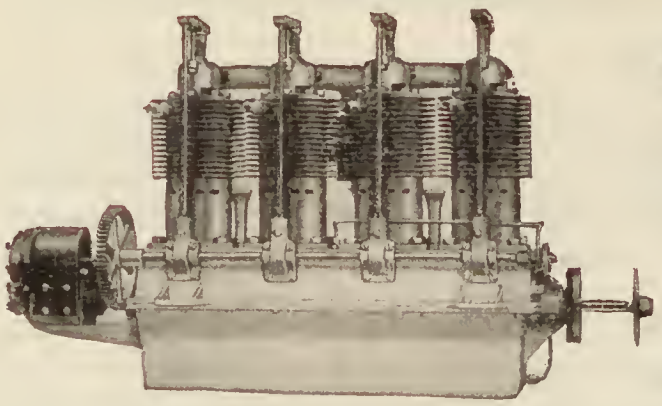
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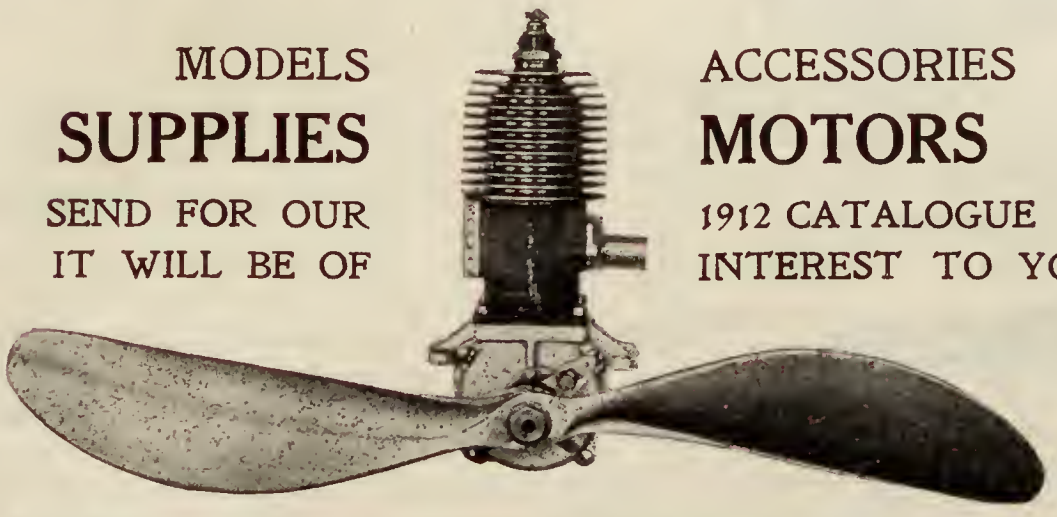
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EUROPEAN PLAN **Send for Booklet**

Aviation Jottings

The Aviation Commission of the Aero Club of France has drawn up the regulations for the French elimination trials for the Coupe Internationale d'Aviation. The preliminary competitions will take place between May 1 and July 15, 1912, under the same conditions as last year on a course of ten kilometres. The total distance to be flown is 200 kilometres.

On April 5, Fischer, on his Henri Farman hydro-aeroplane, with M. Archdeacon as a passenger, left Monto Carlo intending to fly to Genoa. The head wind however was too strong and after reaching beyond San Remo, Fischer decided that it was dangerous to continue. He therefore turned back. The flight to San Remo occupied more than an hour while the return trip was made in fifteen minutes.

Earle Kester Ovington arrived at the home of Earle L. Ovington, at Newton Highlands, Mass., on March 30, weighing eight pounds.

Victor de Yonckheere, who has been assembling his Bleriot monoplane, at League Island, Philadelphia, made a flight on April 6, carrying the flag of the Aero Club of Pennsylvania to an altitude of 2,500 feet. He was in the air 32 minutes, circling the southern section of Philadelphia and flying out over the Delaware river.

O. G. Simmons has become the first aerial postman of New Jersey, carrying the mail from "Rest Hill," to Wickatunk, N. J., on April 10. Manna, Simmons' pupil, carried the mail in a bag and when over the Post Office, at Wickatunk, Manna let go of it and it fell within ten feet of the door. The postmaster was somewhat astonished to receive outgoing mail in this manner.

Gage E. Tarbell, of the Hempstead Plains Aviation, announces that the organization has bought the twenty-four aeroplane sheds, at Nassau Boulevard, and that they will be removed to the flying grounds at Mineola, L. I.



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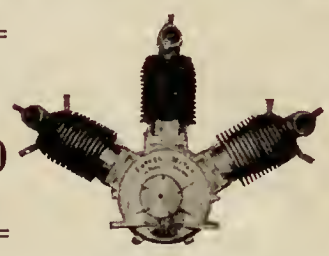
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Gustave Hamel, who, with Claude Graham White, will represent England in the Coupe Internationale d'Aviation, at Chicago, this fall, reached an altitude of 6,000 feet while flying at the Hendon aerodrome on April 6. Before the day was over the wind had attained a velocity of forty miles an hour and many of the events were postponed.

Aviator Chartres made a world record for altitude with two passengers on March 26, when he attained a height of 7,178 feet. The flight was made near Paris.

The Governor-General of French West Africa has recently ordered two biplanes of the Henri Farman Company. This order is the result of the experi- was the first cross-country flight in the ments of M. Carles, who made a flight of 95 miles from Bambey to Dankar. This colony.

On March 28, George W. Beatty, in a Wright biplane, flying at Nassau Boulevard, L. I., caried four passengers besides himself. This is said to be the first time that such a flight has been made in this country. The total weight carried was 550 pounds. The machine was in the air twelve minutes. The passengers were J. R. Wood, of Grand Rapids, Mich.; Charles Lein, Arnold Kroff and Arthur Hale, of Mineola, L. I.

Sikorski, the Russian aviator, piloting a new biplane of his own construction, made a flight, at Keiff, on March 31, with four passengers. He attained a speed of 67 miles an hour and remained in the air 29 minutes. This is believed to be a record for a biplane carrying five persons.

Salmet, who made the fast flight from London to Paris, on March 8, stated that it was not a non-stop flight as he was obliged to alight in France in order to obtain his bearings.

On the fifteenth of April the spring celebration of the Business Men's League, at Birmingham, Alabama, opened under the direction of the Berger Aviation Company. The aviators present included Oscar Brindley, with a Wright biplane; Louie Mitchell, with a Wright biplane; Eugene Heth, with a Wright biplane; Paul Peck, with a Wright biplane; L. W. Bonney, with a Columbia biplane; Fred Shneider, with a Shneider biplane, and George Mestach, with a Morane monoplane. More than one hundred thousand persons are expected to attend during the week.

Aeronautic Notes

The official list of entries for the Coupe Internationale des Aeronautes is now as follows: America, Austria, Belgium, Denmark, England, France, Germany, Italy, Russia and Switzerland. Rusia, England and Denmark will enter one balloon each while the other countries are expected to enter three each. With twenty-four balloons entered the race this year promises to be an interesting one.

At the meeting of the Swiss Aero Club, of March 18, M. P. Armbruster was selected to represent Switzerland in this year's contest in Germany for the Coupe Internationale des Aeronautes. He will pilot the famous balloon Helvetia with which Colonel Schaeck, with Armbruster as a passenger, won the trophy in 1908.

Preparations for the Coupe Internationale des Aeronautes are well under way abroad. M. de Francia, who will be one of the British representatives in the race, has ordered a silk balloon of 2,200 cubic metres capacity.

Interest in the French elimination trials for the Gordon-Bennett Balloon race, to be held this year in Germany, has been shown by M. Seguin, constructor of the famous Gnome motor. M. Seguin has ordered a bag of 1,600 cubic metres for the French elimination race.

The Aero Club, of St. Louis will be represented by three of its aeronautic pilots in the national elimination balloon race from Kansas City, in July, as a result of action taken by the Board of Governors. William F. Assman was appointed to represent the club in its own balloon St. Louis No. 4. Paul McCulloch, who has just qualified for his license, will pilot the Million Population Club balloon and John Berry will pilot the Viking balloon, purchased for the Million Club by Albert von Hoffman. All will enter as members of the Aero Club of St. Louis, as it is required that contestants fly the colors of an affiliated aero club.

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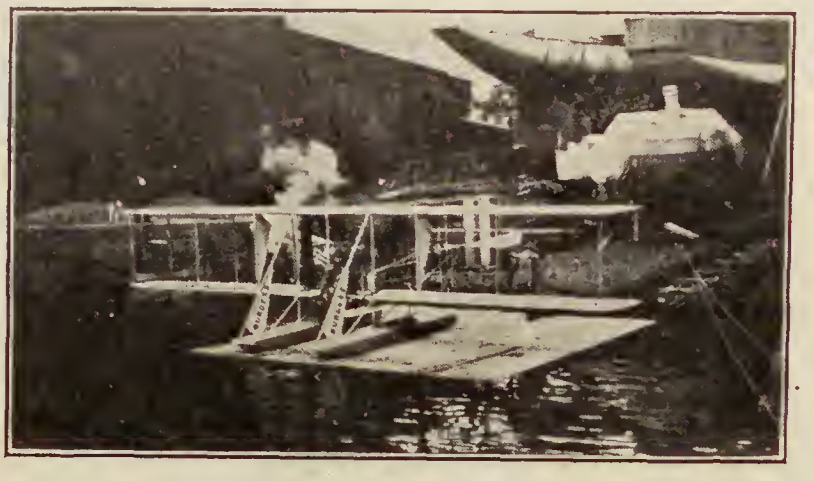
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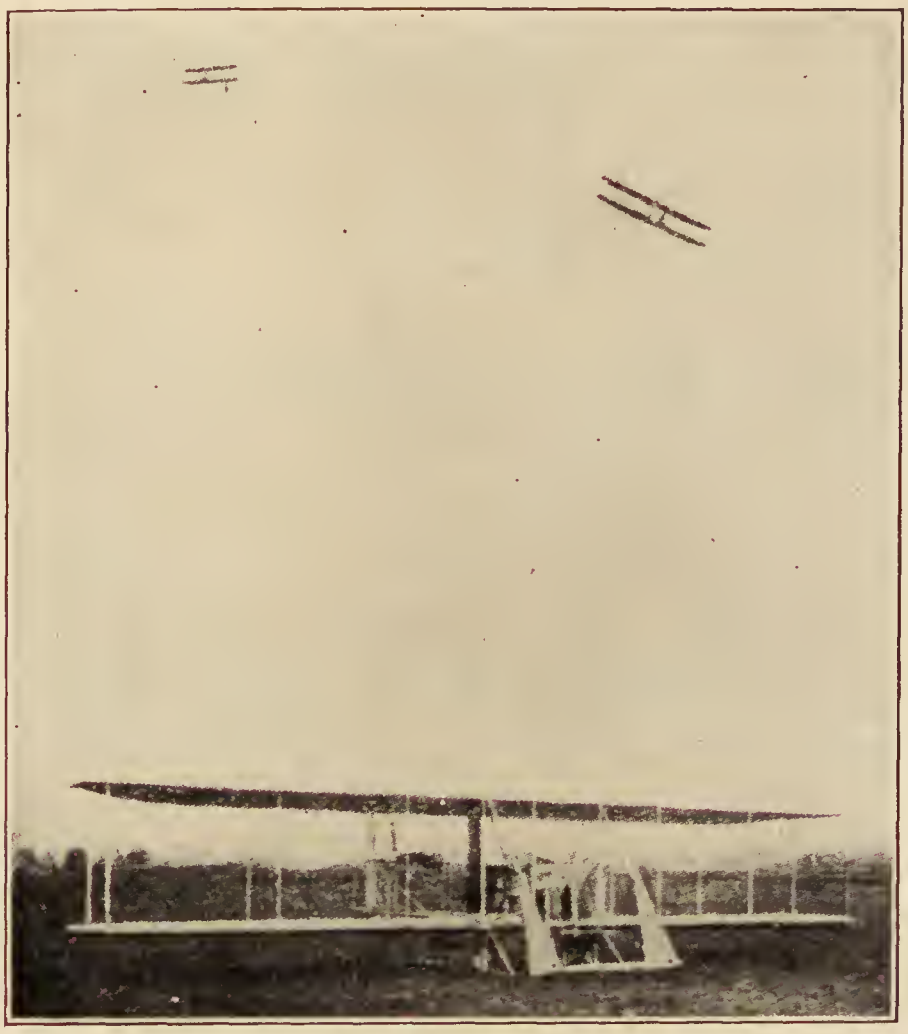
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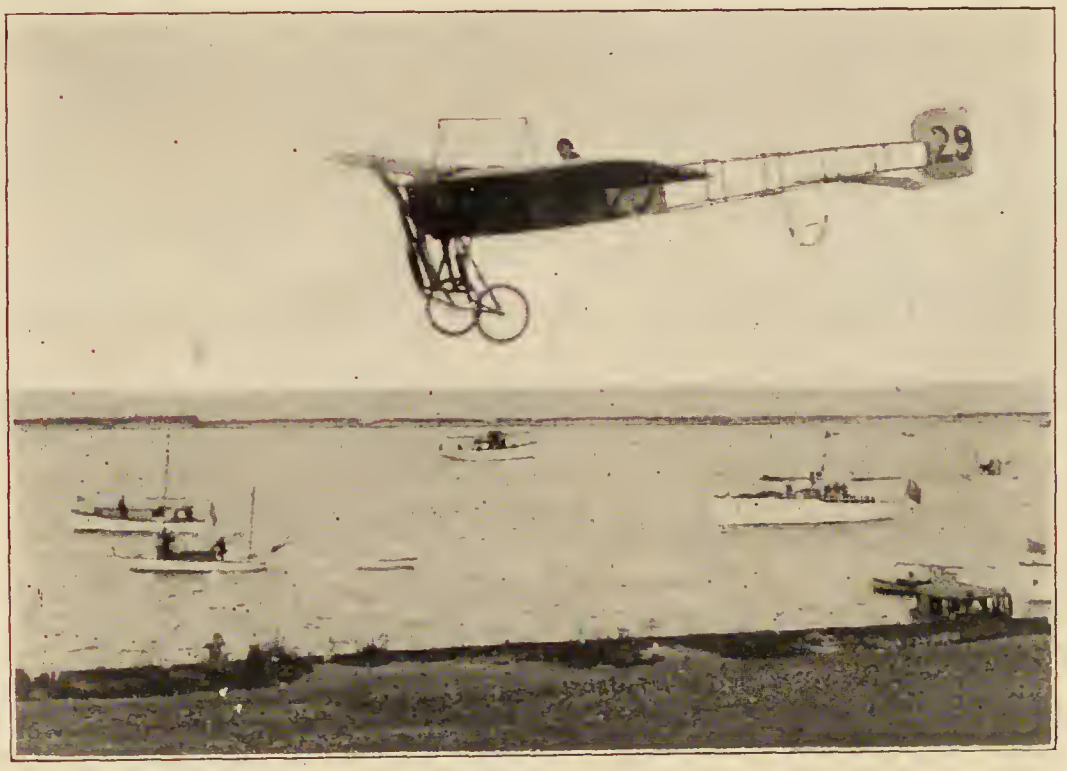
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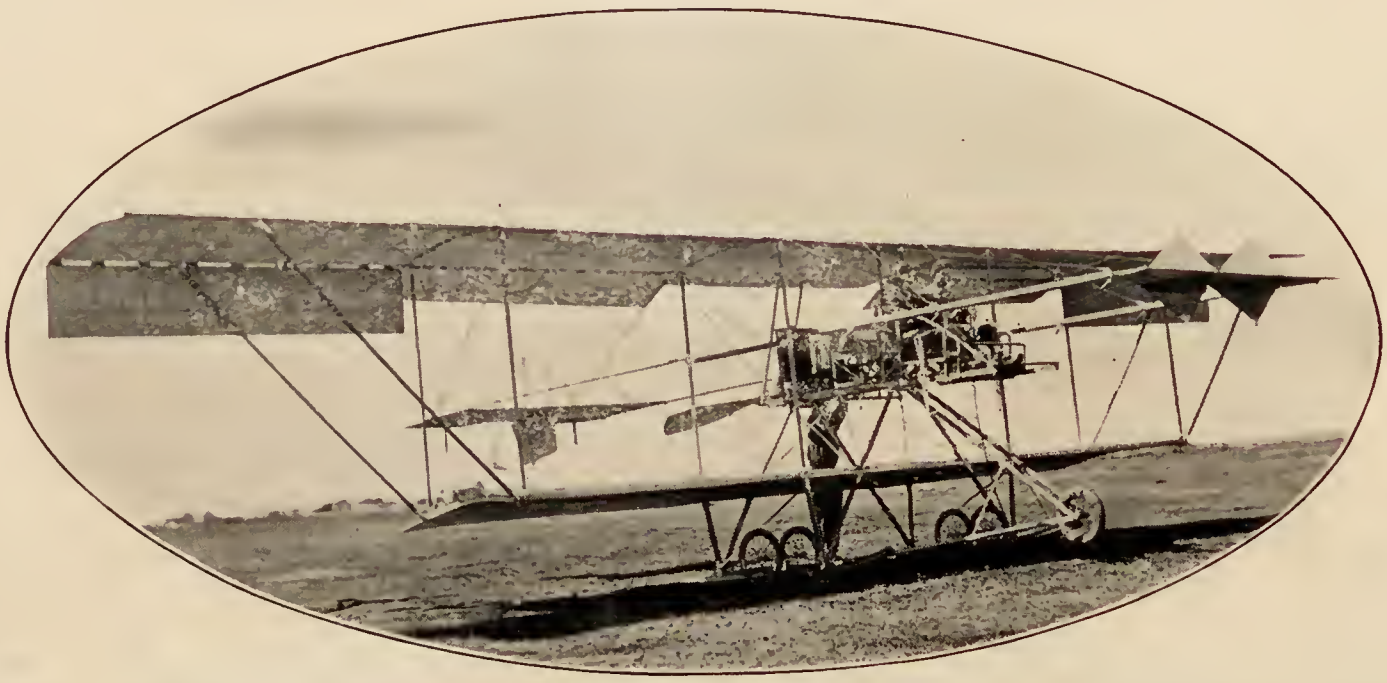
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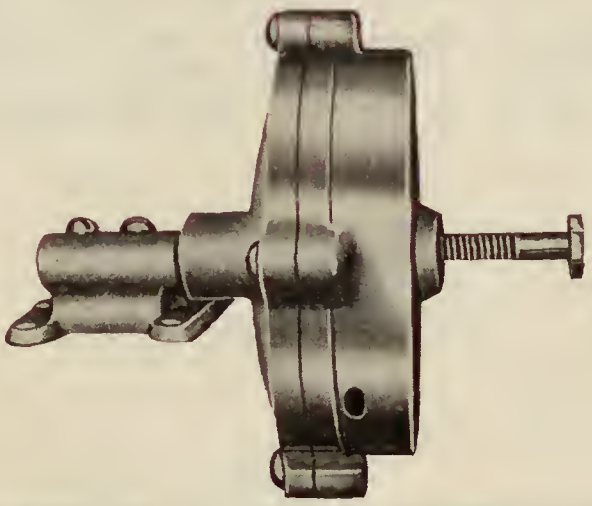
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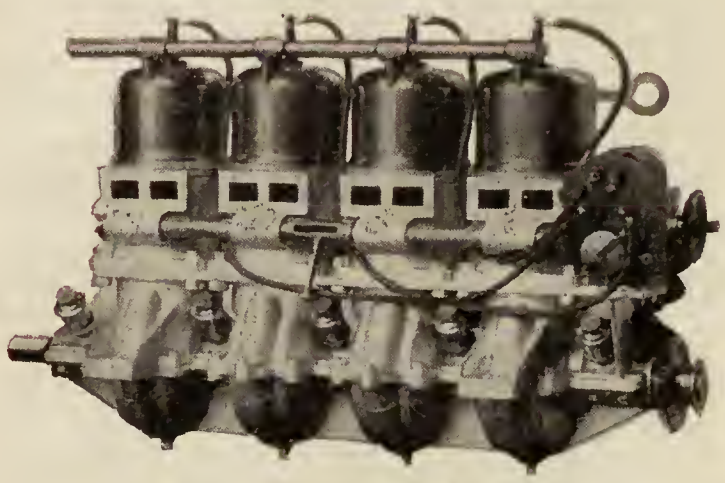
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Orders should be accompanied by a post office money order for the amount specified, and should be addressed to Book Department, Fly Magazine, Bulletin Building., Philadelphia, Pa. Money orders should be made payable to Aero Publishing Company.

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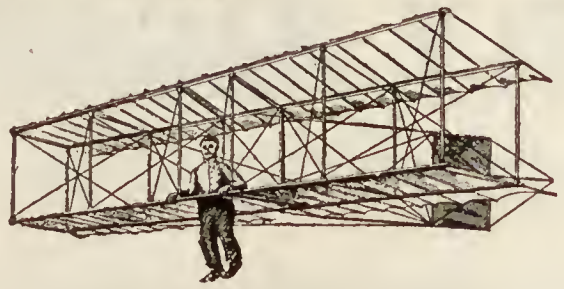
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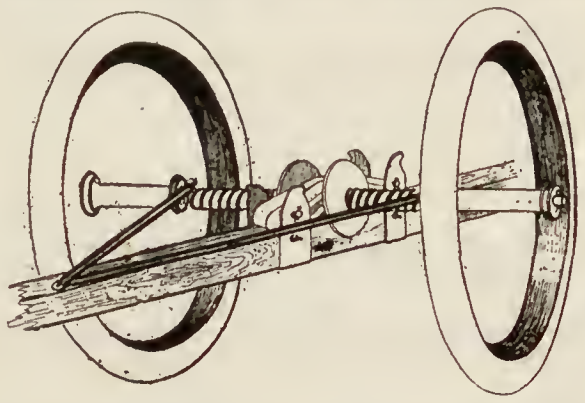
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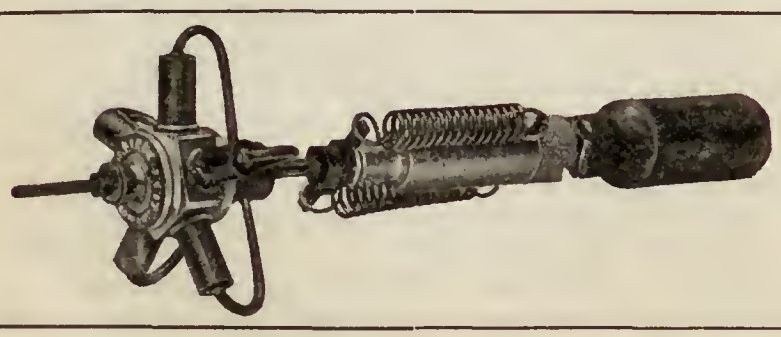
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Fly Magazine

The National Aeronautic Monthly

VOL. IV JUNE, 1912 NO. 8

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How I Made My First Big Flight Abroad

My Flight Across the English Channel

By HARRIET QUIMBY (The first woman to fly the English Channel)

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WHILE flying in Mexico, at President Madero's inauguration, last December, an ambition to be the first woman aviator to cross the English Channel alone entered my mind. The more I thought of it, the less formidable the feat seemed to be. Without mentioning the matter to a soul, for fear that some one across the sea might anticipate my idea, I waited until my return to New York. There I secured a letter of introduction to Louis Bleriot and prepared to present it to him at his factory in Paris.



Photo by H. M. Neely

MISS HARRIET QUIMBY

On the seventh of March I sailed on the Hamburg-American liner *Amerika*, went to London and disclosed my project to the wide-awake editor of the London *Mirror*. He was delighted with the idea and immediately offered me a handsome inducement if I would make the trip as the *Mirror's* representative. The next thing necessary was to get a monoplane. I went to Paris, saw Mr. Bleriot and placed an order with him for a seventy-horse-power passenger machine, regarding which I had had some correspondence with the firm. At the same time I readily arranged with Mr. Bleriot for the loan of a fifty-horse-power monoplane of the type I had been accustomed to use in the United States.

Mr. Bleriot has a hangar at Hardelot, where he has a seaside home. It seemed prudent to try out the new machine first in some quiet way. So it was shipped to Hardelot. I followed soon after. The control of the new machine was a trifle different from that which I had been using in the United States, hence my desire to have a trial flight.

I was eager to test the new machine and rose early the following morning, to find the wind blowing a gale. Patiently we waited all day long for it to diminish. Usually it dies out in the evening, but it kept constantly increasing, until it whistled around the corners of the house at a velocity of forty miles. The next morning, at five, once more I prepared to go out into the chilly air to make a trial. Still the wind blew a gale, and it continued to blow throughout the day.

The persistent gale at Hardelot would not permit me to carry out my plan to try out the machine. Time was flying—even if I was not. I had promised the *Mirror* editor to be at Dover promptly. So I arranged to have the Bleriot monoplane shipped across to Dover at once and wired the *Mirror* to have its photographers and reporters meet me at the Hotel Lord Warden, at Dover. It was vitally important that nothing should be known of my contemplated journey, so the machine was shipped very secretly to the aerodome on Dover heights, about three miles back from the channel, a fine, smooth ground from which to make a good start. The famous Dover Castle stands on the cliffs, overlooking the channel. It points the way clearly to Calais.

I saw at once that I had only to rise in my machine, fix my eyes upon the castle, fly over it and speed directly across to the French coast. It seemed so easy that it looked like a cross-country flight. I am glad I thought so and felt so, otherwise I might have had more hesitation about flying in the fog with an untried compass, in a new and untried machine, knowing that the treacherous North Sea stood ready to receive me if I drifted only five miles too far out of my course. This was the fate of D. Leslie Allen, the English aviator, who started the same day as I did, in a monoplane similar to mine, on a flight over the Irish Channel from London to Dublin. He started, but he never came back. It is a mystery of the Irish Channel.

Sunday, April 14th, was a perfect day for flying across the channel. There was no wind. The sun was bright and warm. The air was so clear that by straining our eyes a little we could see the French coast dimly outlined across the channel. Everybody

said, "Start now. It is your chance. We may have high winds tomorrow and they may last two weeks. That has been the experience of every one who has come here to make the channel flight." I have made it a rule not to fly on Sunday, so we all agreed to try it early Monday morning if the weather would permit.

Our movements, of course, attracted attention. fortunately, Gustave Hamel, the famous English aviator, was with us, as he had volunteered to try out my new machine and get the engine in tune. He did this on Sunday, while a number of persons gathered around the aerodrome fences to see what was going on. Somehow, the rumor had gone out that a woman was to attempt to cross the channel alone in an aeroplane. A few reporters visited the aerodrome with watchful eyes, but as nothing happened they retired one after the other, until we had the field to ourselves.

After all our patient waiting and hoping against hope that the wind would go down toward evening, there was no abatement in its strength. We went back to our hotel at seven P. M., tired, chilled and disgusted. The wide-awake *Mirror* reporters who had taken a tug out into the choppy sea in midchannel and another group who were waiting back of Calais to witness my landing were even more disappointed than we. My greatest disappointment was that I had had no chance to try out the new machine.

"All things come to him who waits." At three-thirty Tuesday morning we were called, had our hot tea, got into our automobiles and at four o'clock were on the flying grounds. There was no wind. Scarcely a breath of air was stirring. The monoplane was hurried out of the hangar. We knew that we must hasten, for it was almost certain that the wind would rise again within an hour. Mr. Hamel, whose courtesy and consideration I shall always remember, jumped into the machine and was off for a short "try-out" of the engine and to report atmospheric conditions. He found everything satisfactory and hurried back, making one of the beautiful and easy landings for which he is famous.

It was my turn at last. Everybody was expectant. I was eager to get into my seat and be off. My heart was not in my mouth. I felt impatient to realize the project on which I was determined, despite the protest of my best friends. For the first time I was to fly a Bleriot monoplane. For the first time I was to fly by compass. For the first time I was to make a journey across the water. For the first time I was to fly on the other side of the Atlantic. My anxiety was to get off quickly.

The sky seemed clear, but patches of cloud and masses of fog here and there obscured the blue. The French coast was wholly invisible, by reason of moving masses of mist. The wind had not come up yet. The smooth grounds of the aerodrome gave me a chance for a perfect start. I heeded Mr. Hamel's warning about the coldness of the channel flight and had prepared accordingly. Under my flying suit of wool-back satin I wore two pairs of silk combinations, over it a long woolen coat, over this an American raincoat, and around and across my shoulders a long, wide stole of sealskin. Even this did not satisfy my solicitous friends. At the last minute they handed up a large hot-water bag, which Mr. Hamel insisted on tying to my waist like an enormous locket.

I soon found that I was not too warm. The channel passage was chilly enough, especially when I shot through the damp banks of mist that speedily enveloped me. I did not suffer, for the excitement stimulated my warmth; but I noticed, when I landed, that the hot-water bag was as cold as ice. It surely saved me something.

It was five-thirty A. M. when my machine got off the ground. The preliminaries were brief. Hearty handshakes were quickly given, the motor began to make its twelve hundred revolutions a minute, and I put up my hand to give the signal of release. Then I was off. The noise of the motor drowned the shouts and cheers of friends below. In a moment I was in the air, climbing steadily in a long circle. I was up fifteen hundred feet within thirty seconds. From this high point of vantage my eyes lit at once on Dover Castle. It was half hidden in a fog bank. I felt that trouble was coming, but I made directly for the flagstaff of the castle, as I had promised the waiting *Mirror* photographers and the moving-picture men I should do.

In an instant I was beyond the cliffs and over the channel. Far beneath me I saw the *Mirror's* tug, with its stream of black smoke. It was trying to keep ahead of me, but I passed it in a jiffy. Then the thickening fog obscured my view. Calais was out of sight. I could not see ahead of me at all nor could I see the water below. There was only one thing for me to do and that was to keep my eyes fixed on the compass.

My hands were covered with long, Scotch woolen gloves, which gave me good protection from the cold and fog; but the machine was wet and my face was so covered with dampness that I had to push my goggles up on my forehead. I could not see through them. I was traveling at over a mile a minute. The distance straight across from Dover to Calais is only twenty-two miles, and I knew that land must be in sight if I could only get below the fog and see it. So I dropped from an altitude of about two thousand feet until I was half that height. The sunlight struck upon my face and my eyes lit upon the white and sandy shores of France. I felt happy, but I could not find Calais. Being unfamiliar with the coast line, I could not locate myself. I determined to reconnoiter and come down to a height of about five hundred feet and traverse the shore.

Meanwhile, the wind had risen and the currents

were coming in billowy gusts. I flew a short distance inland to locate myself or find a good place on which to alight. It was all tilled land below me, and rather than tear up the farmers' fields I decided to drop down on the hard and sandy beach. I did so at once, making an easy landing. Then I jumped from my machine and was alone upon the shore. But it was only for a few moments. A crowd of fishermen—men, women and children each carrying a pail of sand worms—came rushing from all directions toward me. They were chattering in French, of which I comprehended sufficient to discover that they knew I had crossed the channel. These humble fisherfolk knew what had happened. They were congratulating themselves that the first woman to cross in an aeroplane had landed on their fishing beach.

An incident that pleased me more than anything else was the hospitality of one of the fisherwomen. She insisted upon serving me with a very welcome cup of hot tea, accompanied by bread and cheese. The tea was served in a cup fully six times as large as an ordinary teacup and was so old and quaint that I could not conceal my admiration of it. The good-hearted woman insisted upon giving it to me, and no cup that I have ever won or ever shall win as an aero trophy will be prized more than this.

It was not long before all of Hardelot was racing to the beach.

The newspaper representatives, as soon as they arrived from Calais, produced a bottle of champagne from a place of careful concealment and insisted that I permit them to drink my health while seated in the machine. Of course I did so—anything to oblige these faithful recorders of the events of the day.

I had no change of garments, but the *Mirror* men had taken my long seal coat on the tug across the channel, the day before, while they were waiting my arrival, and it covered my flying suit effectively. Then I got into an automobile and motored to Calais, about thirty miles distant, in time to catch a fast train that took me into Paris at seven P. M., a very tired but a very happy woman.

Aeronautical Society Has New Home

THE Aeronautical Society formally dedicated its new home at 304 West 58th street, New York City, on May 23d. Prominent men and women interested in aeronautics were present, including many of the aviators and representatives of the Army and Navy.

MRS. JULIA CLARK, of Chicago, the first woman to take a complete course at the Curtiss aviation camp, San Diego, California, qualified for her license as a competent pilot last Sunday, May 19th. Mrs. Clark flew in a fifteen-mile wind and at an altitude of 800 feet and, according to a telegram from Lieutenant J. W. McClaskey, the instructor, her landings were perfect.

THE AERO CLUB OF PENNSYLVANIA



Room C. Bellevue-Stratford Hotel

Philadelphia, Pa.

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OFFICIAL NOTICE.

A stated meeting of the **Aero Club of Pennsylvania** will be held in room C, Bellevue-Stratford, on Friday, June 7th, at 8 P. M.

GEORGE S. GASSNER,
Secretary.

CLUB NOTES.

The May meeting of the Club was held in the Bellevue-Stratford on May 10th, with a fair attendance.

The Balloon Committee reported an ascension in the Pennsylvania I, on May 4th, from Holmesburg, which was very pleasant. Owing to the absence of wind, the distance traversed was only three miles in a duration of about two hours. Mr. A. T. Atherholt was the pilot, with Messrs. H. H. Knerr and C. P. Wynne as passengers.

The special Legislative Committee was instructed to work for National legislation for the control of aviation and the issuing of aviator's licenses.

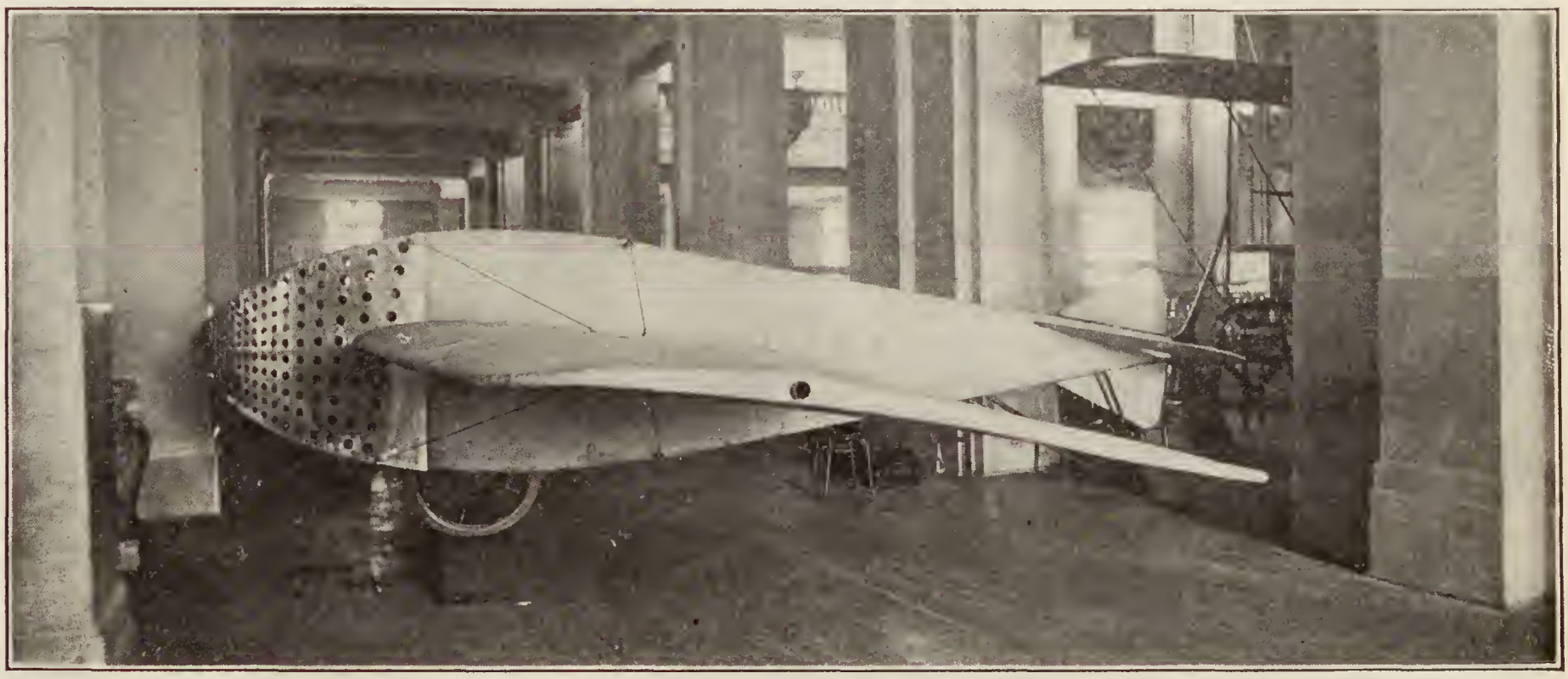
The Committee on Grounds reported that they had finally found a suitable piece of land which would be easily accessible and could be secured at a reasonable rental. The committee was instructed to make further investigation and to report as soon as possible to the Board of Directors.

The proposed revised by-laws were taken up and after some minor amendments were passed, as reported by the committee.

Membership cards bearing the pennant of the club in color have been issued to all members in good standing.

The New York Aero Show

By E. Adrian Von Muffling, Show Correspondent



The 100 h. p. Gnome-engined Gallaudet monoplane

THE features that impressed themselves most forcefully on the mind of the visitor at the New York aero show, were three. First: The almost total absence of "Freaks." Second: The really luxurious appointments shown by machines of standard make; and thirdly, the great number of good American Motors based on sound principles of engineering, showing great thoroughness and individuality of design. It could be seen that trained men and engineers are now beginning to work on the problem of flight. And the show proved that the days are happily passed when a man could put together anything that would turn a propeller and call it an aeronautical motor.

Descriptions of Exhibits.

The first aeroplane that caught the eye of the visitor arriving at the top of the broad stairway leading to the exhibition hall, and compelled immediate attention by its business-like and almost formidable appearance, was the new Gallaudet monoplane, exhibited by the Gallaudet Engineering Co., of Norwich, Conn. This monoplane, which made its first successful flight but a few days before the opening of the show, is the very latest aeroplane on the American market. It combines the leading features of the Nieuport and the new Paulhan-Tatin. The dimensions are: spread 32 feet, length 21 feet, with 205 square feet surface. The fuselage is of square cross section and measures 4 feet square at its widest, tapering down to a point. Drive is effected by a 14 cyl., 100 h. p. Gnome under a pointed aluminum hood, the power being transmitted by a shaft to the rear end of the fuselage where it drives a 3-bladed propeller. A patented device permits adjustment of the angle of incidence during flight. The running gear is novel, being enclosed in the body, the lower half of 28″ x 3″ automobile wheels being the only thing visible. Warping is done by foot control. The machine weighs but 900 pounds, and with its perfect stream-line construction should prove to be exceptionally fast.

Next in order was the exhibit of the Curtiss Company, which proved to be the rendezvous of aviation fans throughout the show. Three machines were on exhibition. Facing the entrance was the new Headless Racer, equipped with single control. The wings show 21 feet 3″ span, with 4′ cord, length over all being 21′. In the Hydro the skid and wheels are replaced by a pontoon measuring 16′ in length, 1′ in depth, and 2′ in width. Dimensions are as follows: Span 37′, chord 5′, length 28′. Two-wheel control was shown. The front elevator is placed remarkably low, being just a little over the front end of the pontoon. The third Curtiss machine on the floor was the regular Model "D," of same dimensions as the Hydro but having a dual single-wheel control, a quadrant on the steering post permitting the wheel to be shifted from one seat to the other. All Curtiss machines showed remarkable finish and workmanship. A point worthy of note is that the outriggers are still being made of bamboo, as in the earlier types. All exhibits were equipped with 8 cyl., Curtiss Motors of 4″ bore by 5″ stroke. Although rated at but 75 h. p., 86 h. p. was

developed in the recent French Government tests, which resulted in a handsome order from that country. It is a gratifying fact that even in the country where the art of building motors is supposed to be most advanced the supremacy of the American product receives official recognition. A 4 cyl., 40 h. p., motor was also shown.

Oposite the Curtiss exhibit the Max Ams Co., of Mount Vernon, New York, displayed their novel Hydro-biplane. This machine, which is shortly to be tried out on Long Island Sound, measures a span of 40′, the length being 25′, and the chord 6′ 8″. Weight 1100 pounds. The rear rudders are similar to the Wright system, connected to a Farman-type control, operating Curtiss ailerons. The control is placed in an aluminum cockpit projecting from the front end of the planes, a little tonneau behind the driver's seat accommodating two passengers; all appointments and accessories being as one would expect to find in an up-to-date automobile. The most distinctive feature of the machine lies in the wings, they being inclined backwards from the center at an angle of 15 degrees. Natural stability is thus expected. The power plant consists of an 8 cyl. Max Ams, V-type motor, with L-cylinders, the intake being in the head. With 3-15/16″ bore x 5-⅛″ in stroke, this motor is rated at 70-80 h. p. By using two magnetos and two carburetors either side of the motor may be cut out independently of the other. The motor is water-cooled and is a splendid example of rational engineering design.

The Rex Monoplane Co., of Staten Island, had on exhibition a remarkably well built monoplane of original type with possibilities of great speed, the fuselage being of the Bleriot type covered over all and the wings having a reverse curve according to the latest French formulæ. Control is by a Deperdussin-type wheel, chains and sprockets being used instead of levers to transmit motion to the wingtips. The landing gear shows original design, shocks being absorbed by springs in telescoping tubes. Smaller springs acting against the central skid prevent damage from a sideswipe. Altogether the design shows great flexibility and ease of replacement. The dimensions are as follows: Span 31′ 4″, length 22′, chord 7′ 6″. Weight 600 pounds.

A most interesting exhibit proved to be the one of A. Leo Stevens, who had a fully inflated balloon suspended from the dome. The "S. & B. Air Line," did a rushing business in booking passengers for balloon or aeroplane flights to be held on Long Island after the show. Many prominent men and women availed themselves of the opportunity to "see what it is like."

Another novelty was the Queen Company's "Aeroboat." This peculiarly shaped craft, which had its first try-out on Newark Bay is the design of G. C. Loening. The aviator sits in the cockpit of a veritable flat-bottomed boat. The control is decidedly novel, two universally pivoted steel bars extending from the rear under the arms of the driver. By pushing one bar forward and the other backward, the vertical rudder is operated, while raising or lowering will actuate the tail elevator. Two Bleriot-type wings are attached to a superstructure which also contains the 50 h. p. Gnome, driving a 5′ propeller by means of a short chain. To prevent back suction the tail is raised clear of the water. In addition a covered Bleriot monoplane with Anzani motor was exhibited by the firm.

Across the way the American Aeroplane Co. had its huge folding monoplane on view. This machine, which is claimed to be able to support itself in the air practically without forward motion, is equipped with two rotary 2-cycle motors and double propellers. The machine has not yet been tried.

A complete line of French aviation motors was shown at the Aeroplane Equipment Company's booth. We men-

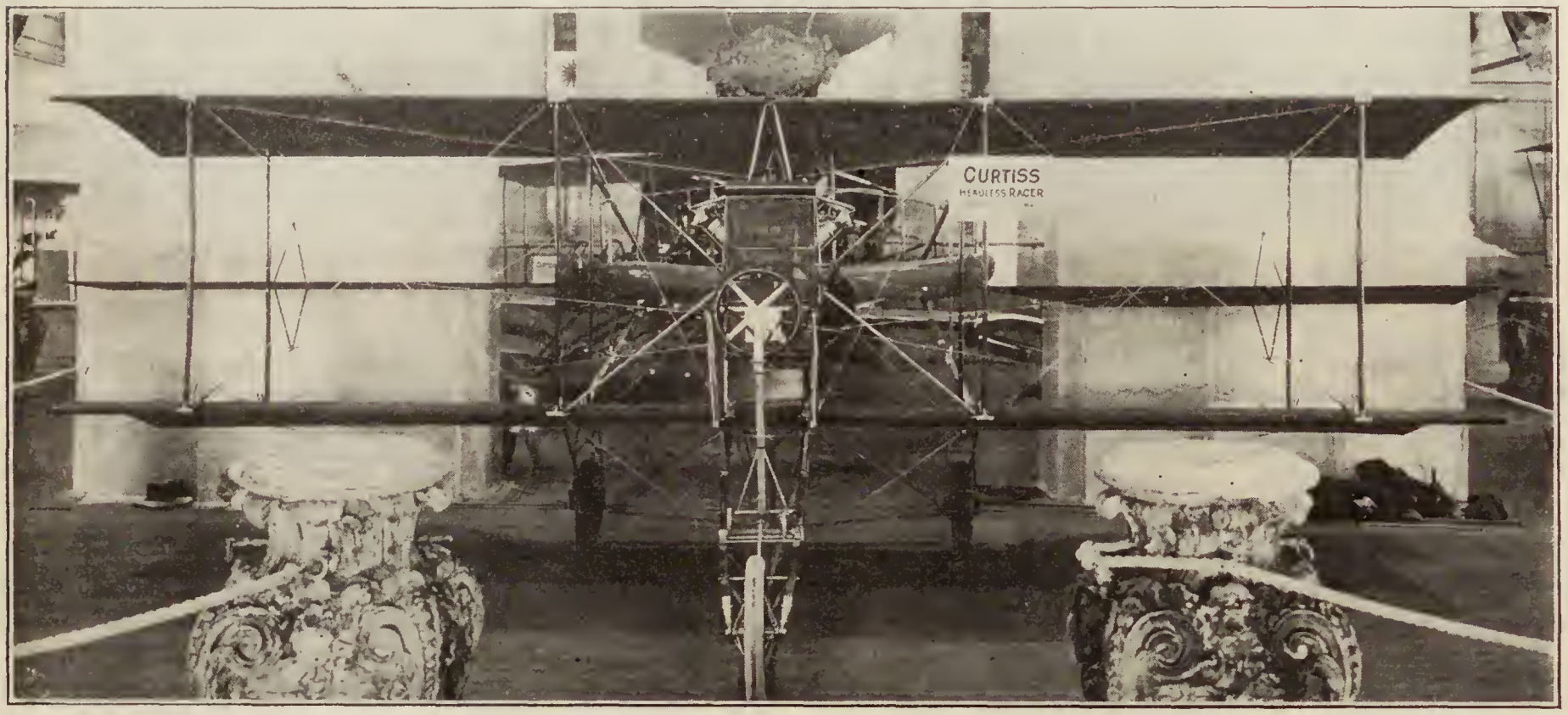


Photo. by Underwood & Underwood

The Curtiss Racer

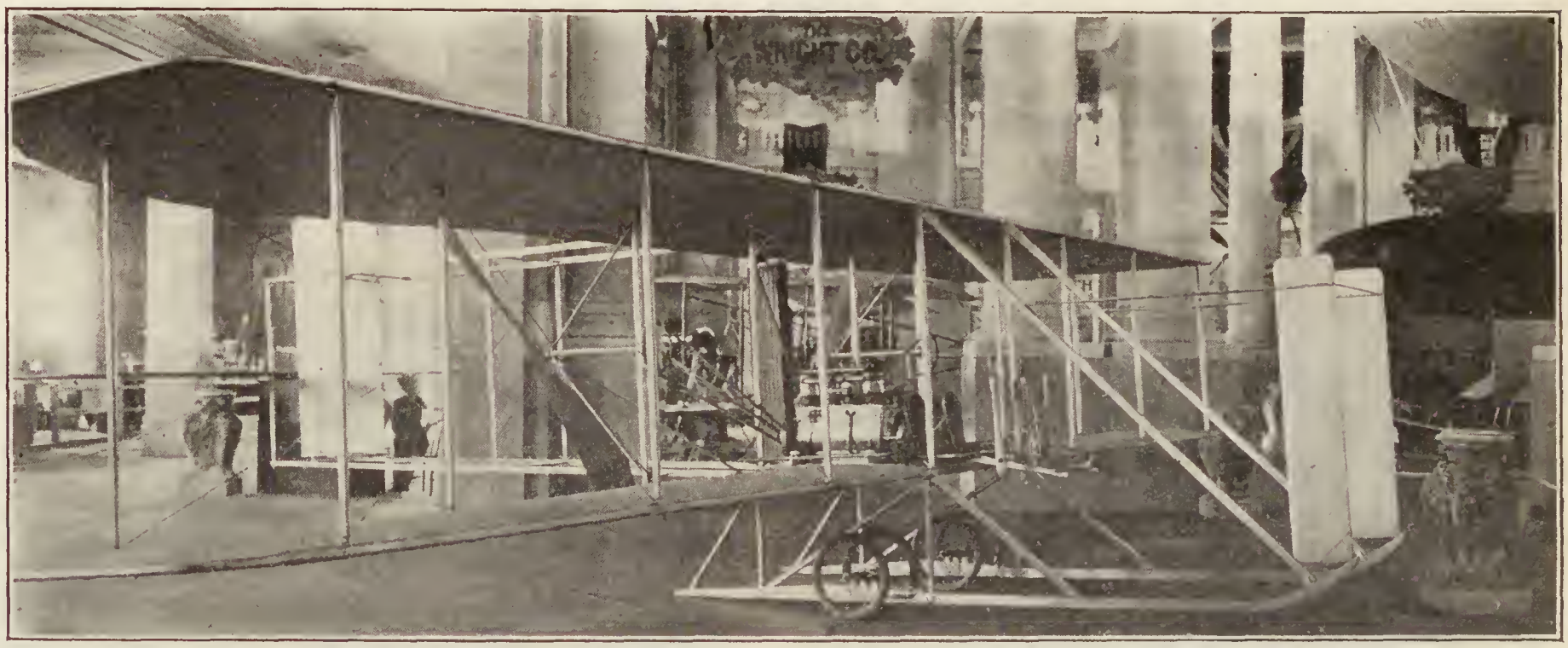


Photo. by Underwood & Underwood

The Model C Wright Biplane, Military type

tion but an Anzani, 3 cyl., air-cooled; an Anzani, 4 cyl., water-cooled, V-type; a Clement-Bayard, 30 h. p., 2 cyl., water-cooled, and two 50 h. p. Gnomes, one of which was purchased by Van der Geerke, the Belgian entrant for the coming International Race. A complete exhibit of Gnome spare parts attracted considerable attention.

At the Roberts booth, E. W. Roberts himself made things interesting for the experts that were wont to congregate around his exhibit, which included two 4 cyl., 50 h. p., and one 6 cyl., 75 h. p. motors, besides a complete set of parts. The cylinders are made of an alloy imported especially from Germany, as light as aluminum and showing a tensile strength of 38,000 pounds. It is called Aerolite. The mixture is admitted through a rotary distributor. The crankshaft is 2½" in diameter.

During the show Mr. Roberts sold two 4-X, 50 h. p. motors; three 6-X, 75 h. p. motors; one 6-XX, 125 h. p. motor. One of the 6-X motors will be used by Hadley in his New York to Washington flight.

Model enthusiasts found their heart's desire at the Baby Engine Company's exhibit. A complete line of engines suitable for model and experimental work was shown here. The motors come in one, two, and four cyl. models, and are guaranteed to deliver ½ h. p. per cylinder. They are not toys and show the same thoroughness of design and manufacture as is expended on the larger motors.

The immense Quadraplane designed by H. W. Jacobs, driven by two independent motors with belt drive, did not fail to attract its share of attention. An 8 cyl., modified V-type, air-cooled motor was also on exhibition here. Four cylinders may be run independently of the others. Valves and push-rods are concentric. A direct fuel injection has been adopted. With 4½" x 5⅛" cylinders, it develops 80-100 h. p. and weighs 320 pounds.

One of the features of the show was the graceful Christmas Biplane, a newcomer which had success at the hands of Paul Peck. Doctor Christmas, of Washington, D. C., a former aid of Professor Langley, was there himself to explain the peculiarities of his design. The wings measure 6½′ in chord, of which 4′ are double-surface. The single surfaced tips are flexible and suit themselves to atmospheric conditions. The camber is 4½" at 1/3 distance from leading edge. Both planes show a decided dihedral angle, their widest distance being at the center, and measure 40′ in spread. An original steering post combines all the controls, turning the wheel manipulating the flap alierons while twisting to right or left operates the vertical rudder. A back and forth motion controls the elevator. This machine is booked to fly from New York to Washington, D. C., without stop, carrying United States Mail. The aeroplane has been equipped with a complete wireless set, and will keep in touch with land stations during the flight.



View of the Roberts Motor Exhibit

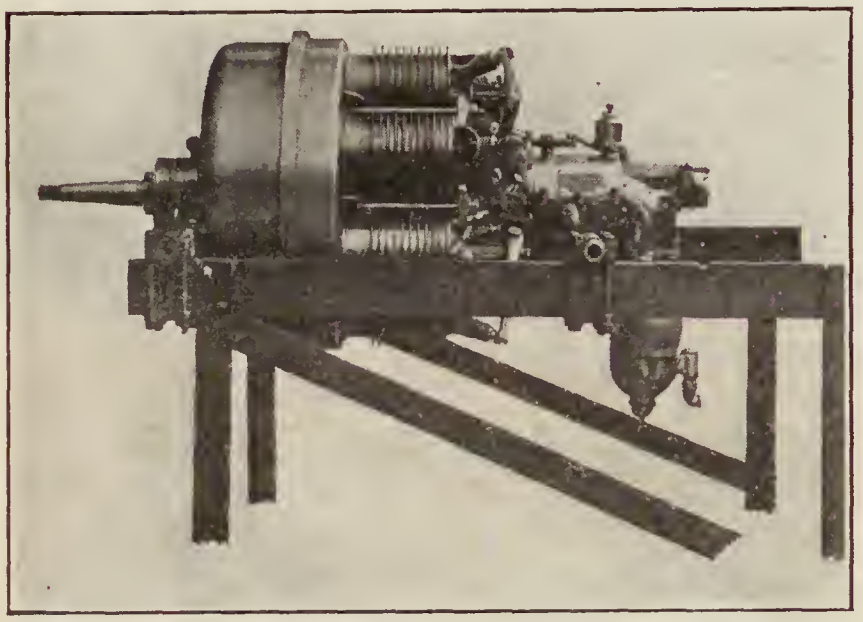
The Goodyear Rubber Manufacturing Company had an exhibition of various grades of aeroplane cloth for which they are justly famous. Many prominent machines in the show were equipped with their product. A scale model of the dirigible "Akron" was suspended from the ceiling and formed part of the exhibit.

At the Hall-Scott Motor Company's booth Captain Baldwin held forth with a full line of that make of motor. No further particulars are necessary to describe this motor, which by its consistent performance is well-known to all American flyers.

The Mead Engine Company, of Dayton, Ohio, were at hand with their new 4¾" x 4½", 4 cyl., water-cooled, 50 h. p. motor. The valves are of the rotary type, and run at ¼ crank speed driven by chain. Ample valve-cooling is provided for. Motor experts found in this exhibit an interesting topic for their discussions.

Another interesting booth was the one in which the new Sturtevant motors were—figuratively and literally—shining. Two models were shown. A 4 cyl. 4½" x 4½" 40 h. p. and a 6 cyl., 60 h. p. The motor is of conventional type and is a good example of careful design. Unusually ample water jackets insure proper cooling. Several motors were sold during show week, and undoubtedly they will be favorably heard from.

Showing several improvements over the other models, the Military Wright, Model C, attracted immediate attention on account of its graceful and elegent appearance. The wing spread of this machine measures 38′ and the chord has been changed to 6′. The gap is 5′. The fins on the machine have been changed and are now rectangular in shape and are erected at the end of the skids in a vertical manner. The gasoline tank has been placed behind the aviator to lessen head resistance.



The Macomber Rotary Motor

The well known Elbridge and Frontier motors were on view at the E. J. Willis Company's stand, together with a complete line of supplies and spares. The former motor is well-known to the public, while the latter has but recently and creditably come to its attention. Two 8 cyl. Frontier motors were shown, with 4⅛" x 4¾" cylinders, water-cooled, rated at 60-70 h. p. Chrome nickel steel is used for all moving parts except pistons.

Another new areoplane and motor were brought out by W. Irving Twombly. The former consists of a Bleriot-type monoplane, fitted with an original landing gear modeled after the Nieuport system. The section of the wing nearest the body is covered with isinglass, enabling the aviator to see directly beneath the machine. The motor, which is a Gnome type with 4" x 4½" cylinders, and develops 50 h. p., distinguishes itself from others by a peculiar cam action in which the cam rotates at engine speed. Another similar cam is fastened on the inside of the crank chamber, the intake valves being operated by a reciprocating push-rod built within the connecting rod. While opinions as to the efficiency of such construction may be divided, it cannot be denied that the arrangement is cleverly designed and executed. This motor proved to be one of the features of the show.

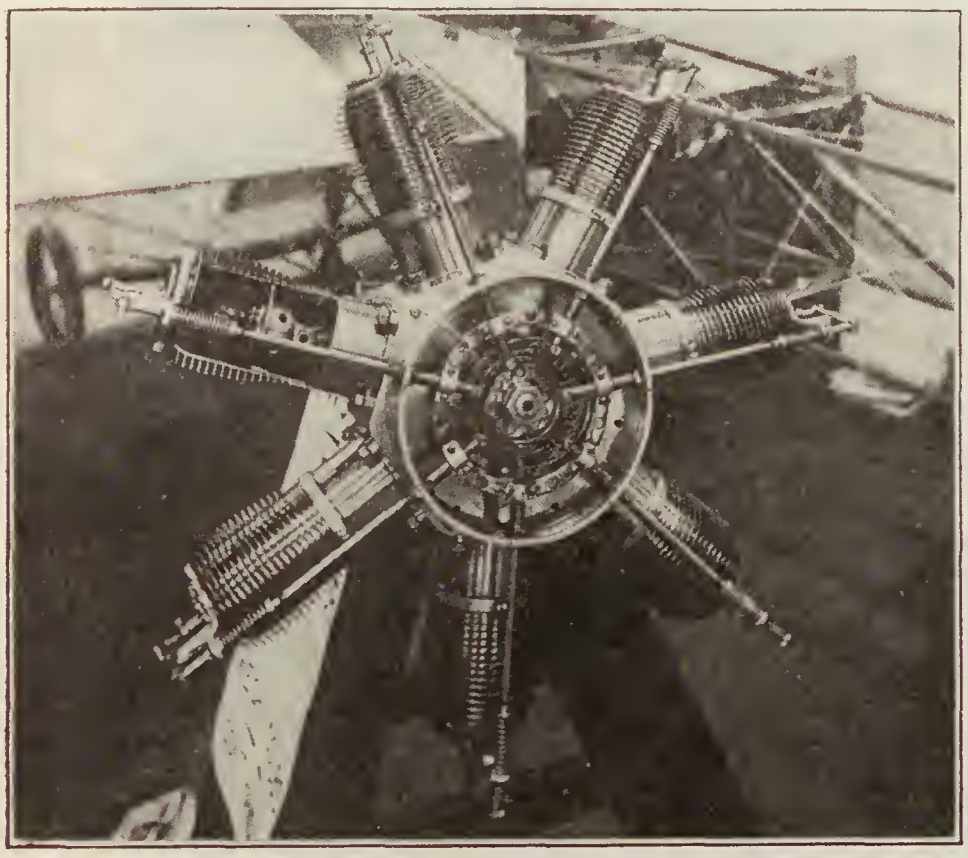
Two Rotary motors with the center line of the cylinders parallel with the axes of the motor were the Trebert of the Trebert Motor Works, and the Macomber, of Los Angeles, Cal. In the former the connecting rods exert their push against small cranks connected with bevel gears. There is one crank for each cylinder, and all gears mesh with one stationary large gear. In the Macomber motor a spider rotates about an axis which is set at an angle to the shaft of the motor—the piston deriving their motion from the difference in distance between the spider and the cylinder at various points of the circumference.

The Macomber motor brakes 50-60 h. p. and has a speed of 800 to 1400 revolutions per minute. It has seven cylinders with a bore of 4¼" x 3⅞" stroke. Its weight is 250 pounds complete. The booth was in charge of the genial Uri B. Curtiss.

The Maximotor Company, of Detroit, had on exhibition two models of their well-known motor, one a 4 cyl., 70 h. p., and one 6 cyl. 105 h. p., both having 5" bore x 5¼" stroke. The military-type of four cylinder motor attracted considerable attention because of its power and dimensions. Mr. Dingfelder, who has charge of the exhibit, sold several motors.

On the balcony the most edifying exhibit was the one shown by the Burgess Company, of Marblehead, Mass. Side by side were shown the old "Flying Fish," the first aeroplane built by that concern, and two of the most advanced products of aeroplane construction. Of the latter, one is described as a War-machine, being a tractor biplane with complete equipment for two operators. A wireless outfit, fed from a dynamo belted to the 70 h. p. Renault motor, is part of the regular equipment in addition to the most modern dashboard accessories. The fuselage is built somewhat along Breguet lines, with double vertical rudder. Complete Wright control has been retained, it being probably the first time that such a control has been applied in a closed cockpit. As there are no sidewise motions this system lends itself admirably for application in such a cramped space. The other machine on exhibition is a standard Burgess, two-seater, Hydro, with Kirkham engine, a type well-known to readers of FLY.

A biplane flying tail forward a la Voisin Canard, was shown by the Gressier Aviation Company. Its designer, who holds a French brevet, has given us an exceptionally well-built machine of following dimensions: Span 32′, length 24′, chord 5′ 4″. Drive is effected by a 50 h. p. Gnome coupled to a Gibson propeller. The elevator is exceptionally large, measuring not less than 10′ 8″ x 2′ 8″.



The Twombly Rotary Motor

The National Aero Company had a Bleriot monoplane type on exhibition, equipped with a Gray Eagle self-starting motor.

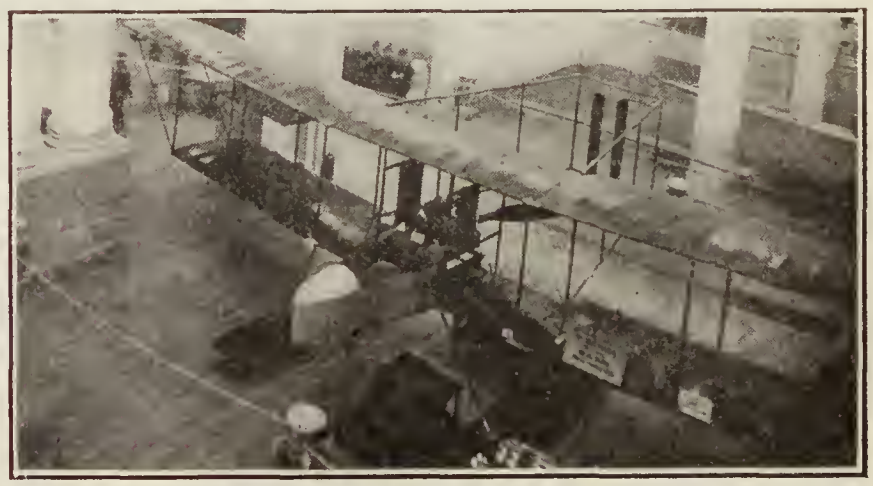
Among other well-known machines we found Captain Baldwin's Red Devil, just returned from China; Harry S. Harkness's Antoinette monoplane; Frank Coffyn's Hydro, which has lately been flown in New York Harbor; a Nieuport, recently purchased by Allan Ryan, and the original Rheims racer exhibited by Glenn H. Curtiss.

The model Aero Club had a stand at which several clever models were shown by youthful inventors.

Other interesting booths were those equipped by the Pennsylvania Tire Company with a line of wheels and tires and of the Newmastic Company with a rubber tire filler. The Magnalium Company had a full display of aeronautic castings.

Altogether it was a splendid exhibition and its beneficial influence is likely to be felt all over the country. Even if the show has resulted in a financial deficit, as seems likely at the present writing, the money could not have been expended to better advantage. For this show has done more to give the public a truly comprehensive idea of the aeroplane, its scope and its limitations than any amount of reading or any number of aviation meets could possibly have done.

For the first time the average individual has been brought in close, intimate contact with the machines that had been seen only mysteriously outlined against the sky. The show has enabled him to exchange ideas with the men that are factors in the aviation world, to hear prominent aviators and designers tell of their experiences. And the man in the crowd has finally been brought to realize that the aeroplane is now an accepted fact and that most machines rival automobiles in comfort, ease of control, refinement of construction and even safety.



The Max Ams Hydro-aeroplane

The impetus given to the industry as a whole resulting from this education is incalculable. The writer has personal knowledge of at least one case where a man of means after a close inspection of the exhibits promised financial support to an inventor with a sensible proposition. And I doubt not but that several such agreements may be traced directly to the educational results of the show on the minds of investors.

The only fault the writer found worth mentioning is that the hall in which the exhibition was held is not quite suitable for this particular purpose. Although there was plenty of room on the floor the many columns in the building prevented the observer from getting a true picture of the show as a whole. A single large hall with a domed roof would be much better suited; this being one of the features that added so much to the imposing magnificence of the London and Paris salons. Let us hope that next year even Madison Square Garden shall prove too small to hold the many exhibitions that—encouraged by this first success—will be clamoring for admission.

Aero Club President Flies

ROBERT J. COLLIER, the well-known sportsman and aviation enthusiast, made his first flight as an aeroplane pilot on May 23d. For some time Mr. Collier has been learning to fiy under the instruction of Walter Brookins, first in Florida and later at Seidler's Beach on Raritan Bay. It was from here that Mr. Collier made his first flight remaining in the air seventeen minutes.

Friends of Mr. Collier await with expectation his flights for his pilot's license.

Unusual Flight Precedes Aero Show Opening



Photo. Courtesy of James H, Hare

On board the cruiser Washington, left to right, Walter Brookins, Rear Admiral Osterhaus, Robert J. Collier and Lieut. Anderson

ON May 9th, Robert J. Collier, with Walter Brookins as aviator, flew, in a Wright hydro-aeroplane, from Keyport, N. J., to the United States cruiser Washington, anchored off the foot of West Ninety-sixth street, in the Hudson river.

The purpose of the flight was to permit Mr. Collier to invite Rear Admiral Hugo Osterhaus to a luncheon to be given in his honor at the clubhouse of the Aero Club of which Mr. Collier is president.

The invitation was delivered to the Rear Admiral and accepted by him thirty-two minutes after Mr. Collier stepped into the hydro-aeroplane at Keyport. The distance is thirty-five miles.

The journey began at 9.15 o'clock. The route lay along the Jersey shore and the entire west shore of Staten Island, this being the first time that an aeroplane has been in that particular section of the country. The 'plane circled about the cruiser Washington at 9.43 o'clock and came to rest with a slight splash in the water at 9.45.

Mr. Collier stepped aboard after Brookins had steered the machine up to the gangway, and the first words of Rear Admiral Osterhaus as he came forward to greet his skyline caller were, "Well, how did you like your journey?"

"Rather a wet trip," said Mr. Collier, who was dripping from head to foot. "It started to rain just after we left and it rained all the way here."

As the flight was undertaken unannounced, even the officers of the Aero Club did not know what it was all about. The hydro-aeroplane was first observed off Staten Island flying rapidly north. River and harbor craft began to salute it vigorously with their whistles until the Hudson and the western portion of the bay became alive with noise.

In the heavy mist it was impossible to see the flyers for any great distance, but one ship after another took up the whistling as those nearest the hydro-aeroplane gave them the cue. At the Battery a crowd hastily gathered and windows in the downtown skyscrapers were opened wide while occupants of offices tried to catch a glimpse of whatever was causing the commotion.

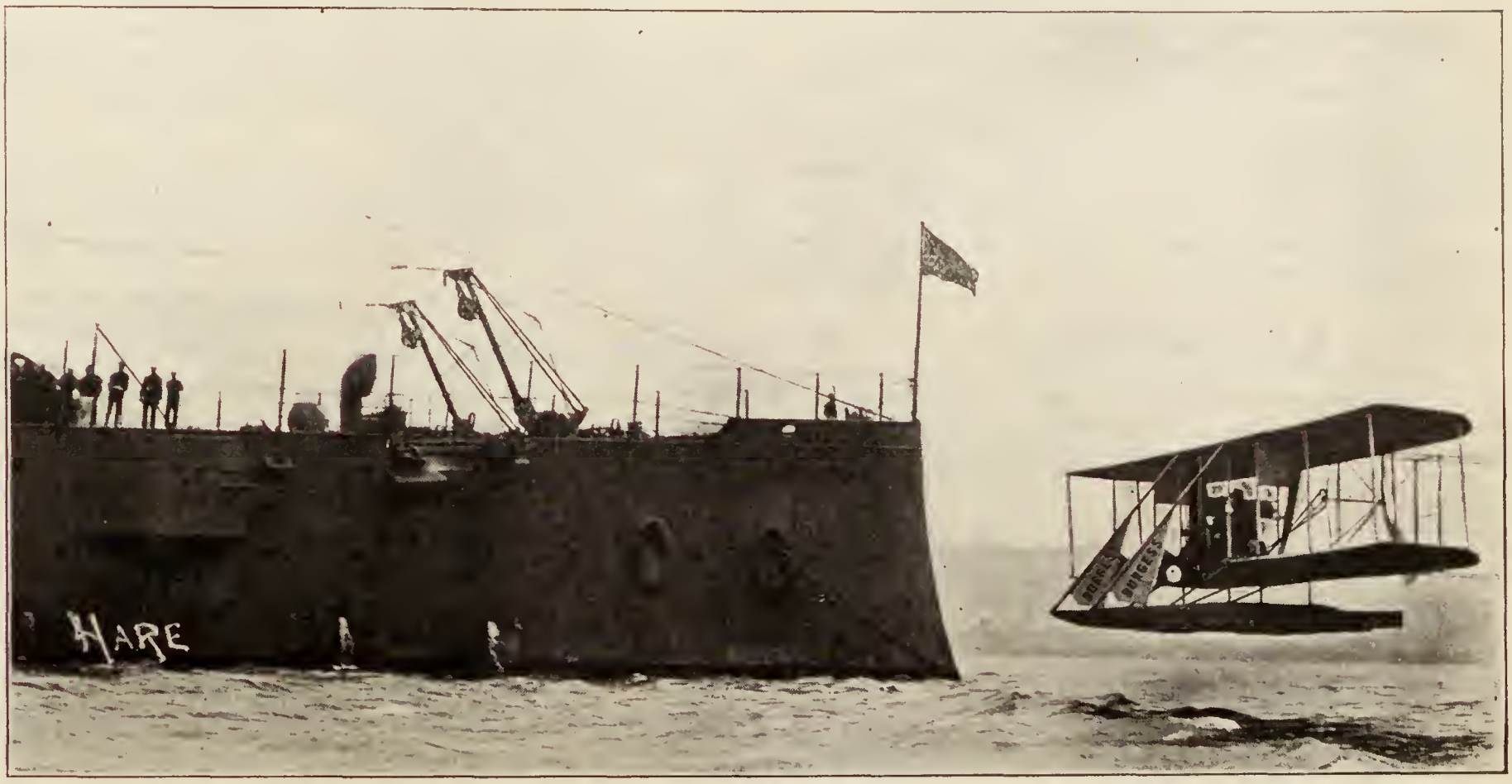


Photo. Courtesy of James H. Hare

R. J. Collier and Walter Brookins approaching the Cruiser Washington

At 10.30 o'clock Mr. Brookins and Mr. Collier came ashore in the Captain's gig, accompanied by a number of officers. In the party were Rear Admiral Osterhaus, Capt. Hill, Lieut. Anderson, Lieut. Barker, and Ensigns Kennedy, and Dennett, all of the Rear Admiral's staff.

The party proceeded to the clubrooms of the Aero Club, where the naval officers were guests at a luncheon in their honor, and later they attended the formal opening of the club's first annual show.

Rear Admiral Osterhaus said he felt honored to receive the first formal call from shore by aeroplane and that in order to preserve a record of the event he had it duly recorded in the ship's log, together with the names of the visitors.

Andre Beaumont Writes History of his Three Big Flights

My Three Big Flights, by Andre Beaumont (Lieut. Jean Conneau) is a tale relating the experiences of the winner of the three big 1911 circuit races of Europe and surpasses anything in truth or fiction that has been written on the subject.

A certain fascination seizes the reader from the moment he begins the story until he has finished the last pages. What are the experiences of a racing airman? How does it feel to fly hundreds of miles a day at a thrilling speed? Many are those who ask these very questions of every aviator who has had experience in long flights, but it is safe to say that never have these questions been answered so fully and satisfactorily as Beaumont does in this book.

He has kept a diary during these flights and they are of the utmost interest to all concerned with the art of aerial navigation.

Stress is placed by the author upon the necessity of being in perfect physical condition to attempt these big flights and no doubt Beaumon't success has been due in part to the care he exercises in this respect.

In a chapter devoted to general observations Beaumont warns the novice against thoughtless enthusiasm and places emphasis upon a careful study of the technical and theoretical branches of this sport. He says that while this knowledge may not ensure safety yet he believes that many fatalities have resulted from a total ignorance of the principles of flight.

"Technical knowledge and power of endurance are indispensable to a good aviator," says Beaumont. "Presence of mind is invaluable * * *." "The easiest aerial trips are accomplished accompanied by the most extraordinary surprises and it is necessary to have the mastery over one's nerves in order to avoid a tragedy."

Beaumont in this book has given to the world an invaluable treatise on the art of flying. The advice and suggestions contained therein come from a master of flight and one whose keen judgment and coolness has brought him many triumphs.

"My Three Big Flights," is a book for every person interested in the science of air travel to read and consider. It should be in the library of every aviator and on the book shelf of every aviation school.

FLY MAGAZINE

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The Aero Show

THAT progress is being made in the aeronautic industry in this country was attested to by the aeroplane and motor display at the Aero Show which has recently been brought to a close in the New Grand Central Palace in New York.

Progress was more evident in the various motor exhibits than in the aeroplanes. Undoubtedly the Wright-Curtiss suit is responsible, to a great extent, for the slow development of the aeroplane industry. Since all the aeroplanes that fly either warp their wings or use ailerons of some description, the builders are very much interested in the answer to the question that the New York Court is to decide, "Do we infringe?"

However it is only fair to say that this Aero Show was the most complete of its kind in the country. True it followed in the footsteps of those held in Boston, Philadelphia, St. Louis and Washington, but it had profited in many ways by their experiences.

It is estimated that somewhere in the neighborhood of twenty thousand persons attended the show. Probably less than ten per cent. of this number had any real interest in aeronautics until after they had seen the show. It is safe to predict however that after the exhibit was over, another ten per cent. had been added to the list of enthusiasts.

Praise is due to W. Irving Twombly and the committee of men who worked so earnestly with him to make the Aero Show a success. Twenty-three machines were set up at the Palace and almost twice as many motors. With the material that was available, the Aero Show was a representative exhibit and one worthy of duplication next year.

However it was evident that the interest of the public is not centered very much in aviation as is seen by the attendance, as well as the way in which the majority of the visitors hurried through the exhibits and then away to Broadway.

One of the drawbacks to the Aero Show was the location of the building in which it was held. New York seems loathe to come that far from the "Gay White Way."

The exhibitors as a whole seemed well pleased with the results of the show although many of them did not do any actual business. However every one is optimistic regarding the business that will come as a result of the show.

While it was apparent from the lack of interest that the show was several years ahead of its time, it may be that public interest in aviation will receive a tremendous impetus as a result of it.

To conduct a successful show of any kind, public interest must be manifested. Public interest is at present quite absent in aviation and this must be aroused; the aviators by flying in a way to bring out the possibilities and usefulness of aeroplanes, and the aeronautic magazines by judicious use of their pages for the benefit of their audiences.

This is not going to be an off year for aviation, despite the cries of the pessimist, and when the year 1912 is brought to a close it will be found to have been the biggest year yet, in American aviation.

$62,500 for Aero Laboratory

THE German Reichstag, at its session on May 20th, appropriated the sum of $62,500 for the foundation and maintenance of an experimental institute for aeronautics.

So far, in the United States, the experimental work in aviation has been carried on by individuals at their own expense and quite naturally they are loathe to reveal any valuable results that they have obtained.

An example of what has been done along this line is found in the work of Eiffel whose results have been published in almost every aeronautical journal in the world.

The United States needs just such a laboratory. Nearly all the countries of Europe have them, as was pointed out specifically in an editorial in the March issue of FLY.

We are simply tagging along, using the results of others. We have the men to carry on such a work if the money were appropriated. It seems difficult to interest official Washington in such matters.

It is very unfortunate that the members of Congress seem to consider the game of politics paramount to the progress and development of the United States.

Bedel Wins Coupe Pommery

DESPITE the high wind and chilly weather that prevailed on April 30, three aviators left their respective aerodromes as soon as day broke in the hope of winning the Coupe Pommery ($1,500), offered for the longest flight in a straight line which should have been made between sunrise and sunset on or before April 30.

A fourth competitor, and one who had a very good chance to win the prize, Vedrines, has been hovering between life and death at the Lariboisiere Hospital as the result of injuries received in his fall at Epinay-sur-Seine.

Bedel, who flew from Villacoublay to Biarritz, a distance of about 700 kilometres (437 miles), is the winner of the cup, which was previously held by Busson.

Bedel, the young aviator who lately sprang into prominence by his remarkable flight from Paris to Nancy, left Villacoublay, just outside of Paris, on a Morane-Saulnier monoplane at 4.51. If the weather remained good, he said, he intended to fly as far as Bourgos and Madrid.

Reaching Tours at 6.20, he waited only forty minutes, and took up his flight again toward the South. About an hour later he reached Angouleme, and at 10.15 he appeared over Bordeaux. Between Angouleme and Bordeaux he said he encountered heavy squalls of wind which rocked his monoplane considerably, and at one point of the journey he ran into a snowstorm. He had covered the distance from Paris, or 540 kilometres, at an average speed of about 130 kilometres an hour. He learned at Bordeaux that Prevost was following him, and if the latter did not get too close he said he would not attempt to fly as far as Madrid.

The wind was so squally that Bedel was compelled to remain at Bordeaux until late in the afternoon, when the weather became better, and he started for Biarritz, where he landed at 5.37 P. M., having covered the distance of nearly 700 kilometres (437 miles) in the day, and thus won the cup.

Prevost, on a Deperdussin monoplane, left Nancy at 5.30 with Besnard as a passenger. The sky was overcast and a good wind was blowing from the northwest. His objective point was Madrid, but he changed his mind later in the day and determined to make for Les Sables-d'Olonne.

A little more than five hours later, or at 10.48, Prevost reached Tours, 500 kilometres away. Travelling at an average height of about 1,800 metres he encountered a very strong wind which compelled him to make two stops, at Favigny, in the Department of the Yonne and the other at Ligny, in the Loiret. After getting a new supply of oil and petrol and taking his dejeuner, he ascended again at 12.12 P. M.

M. Prevost was unable to reach Les Sables-d'Olonne, but landed a short distance from there and thus lost the cup.

Cross-Channel Service Proposed

AT a meeting of the Town Council of Dover, England, it was reported that the Compagnie de Navigation Aerienne proposes to establish a permanent service of cross-Channel aeroplanes between Dover and Calais. The service is to commence July 1st. Two non-sinkable biplanes are being constructed for this service.

The Letter Box

Editor of Fly,

My dear Sir: I have read with interest your editorial and Mr. Hudson Maxim's article on "Aviation in Colleges."

With our present force in physics, we should find it a little hard to do justice to this branch of the theory of the subject without sacrificing other lines of work to which we are already committed; and I am afraid that our finances would not allow our appointing a special professor for this purpose out of general income. If we could get an endowment for a chair such as Mr. Maxim describes we should deem it a great piece of good fortune; we should at once proceed to appoint the best man we could get, and give him all possible facilities in the way of laboratories and opportunities for instruction.

Faithfully yours,

A. T. Hadley,
President of Yale.

Ithaca, N. Y., May 1, 1912.

Editor of Fly,

Dear Sir: I am in receipt of yours of the 26th inst. I have not yet read the article to which you refer. But I do not need to be convinced that aeronautics is entitled to a place in the curriculum of our scientific schools. I wish we had an endowment to make provision for it in the enginecring colleges of Cornell University.

Very truly yours,

J. G. Schurman,
President of Cornell.

From the *Columbia Spectator,* April 13.

"Originally, education, like fine raiment, was decorative. Ornament has always preceded utility in dress. The same thing has been true with education, and although no longer true to the same extent, it is still largely true. With this as a preface Hudson Maxim, in the current number of the Fly Magazine, urges upon the colleges the advisability and the necessity of giving aeronautics a place in the college curriculum.

Commenting editorially upon this article the Fly Magazine states that it has already received a number of letters requesting information in regard to universities giving courses in aeronautics. Evidently, then, there is even now a considerable demand for such courses and anyone at all gifted with foresight is bound to recognize that in the near future aeronautic engineering will form a large and distinct branch of the profession. The field is as yet practically untouched and offers immense opportunity, 'opportunities such as come but once in several generations.'

We at Columbia pride ourselves that we are thoroughly abreast of the times and, as a university, are offering the most comprehensive course of studies in the country. A course in aeronautics should be included.

The aeroplane has come to stay, but there are immense problems involved which are still unsolved. It should be the College man's task to find the solutions."



A DEPARTMENT FOR ALL INTERESTED IN MODELS AND MODEL FLYING

Conducted by the Junior Editor **Model Editor, Philip T. McCutchen**

Prizes for Model Hydro-Aeroplane Flights.

$5 *in gold to that member whose model rising from water flies the greatest distance in a single flight.*

$3 *to that member whose model flight is recorded to receive the award of second place.*

To those members whose model flights rank third, fourth and fifth each will be given a copy of Francis Collins' "Second Boy's Book of Model Aeroplanes."

Rules for the Competition.

1. *Competitors must be members of the National Junior Aero Club.*

2. *All model flights made in competition must start from water.*

3. *Flights made in competition must be witnessed by three adults, whose signatures and addresses must be attached to the record submitted to the Junior Editor.*

4. *A photograph of the model must accompany each entry.*

5. *Flights in competition must be made between July 1st and August 1st. All entries must be mailed by 12 M. July 31.*

The National Junior Aero Club

Any youth between the ages of twelve and twenty is eligible to membership; the dues of the club are one dollar a year, each member receiving a free subscription to FLY, the official organ of the club, and a club button. This also entitles the holder to compete for prizes offered to the members of the club. Boys in families, some members of which are subscribers to the magazine, are eligible to membership without the payment of dues and will be forwarded a club button on application. All inquiries and dues should be mailed to the Junior Club Editor, FLY Magazine, Bulletin Building, Philadelphia, Pa.

De Giers To Fly Isthmus

AFTER doing considerable exhibition flying on the Isthmus of Panama, Clarence De Giers, who flies a Moisant monoplane, has announced that he will attempt to fly from Panama to Colon on the first favorable day. He expects to make the trip in fifty minutes but serious doubts are entertained as to his making the flight at this time.

A Model Hydro-Aeroplane

By Philip T. McCutchen

A FASCINATION has been added to model building by the development of hydro-aeroplane models. To watch one of these small creations lift from the water and take wing is an inspiring sight and one that an enthusiast finds much pleasure in doing.

One of the drawbacks to water flights with models has been on account of the difficulty to build light and efficient floats. One of the best now in use is that one designed by Glenn Curtiss.

To adapt the design is easily accomplished but a serious obstacle arises in overcoming the weight of a wooden or metal float. Experiment however proved that a simple pasteboard pontoon would be successful on account of its extreme lightness.

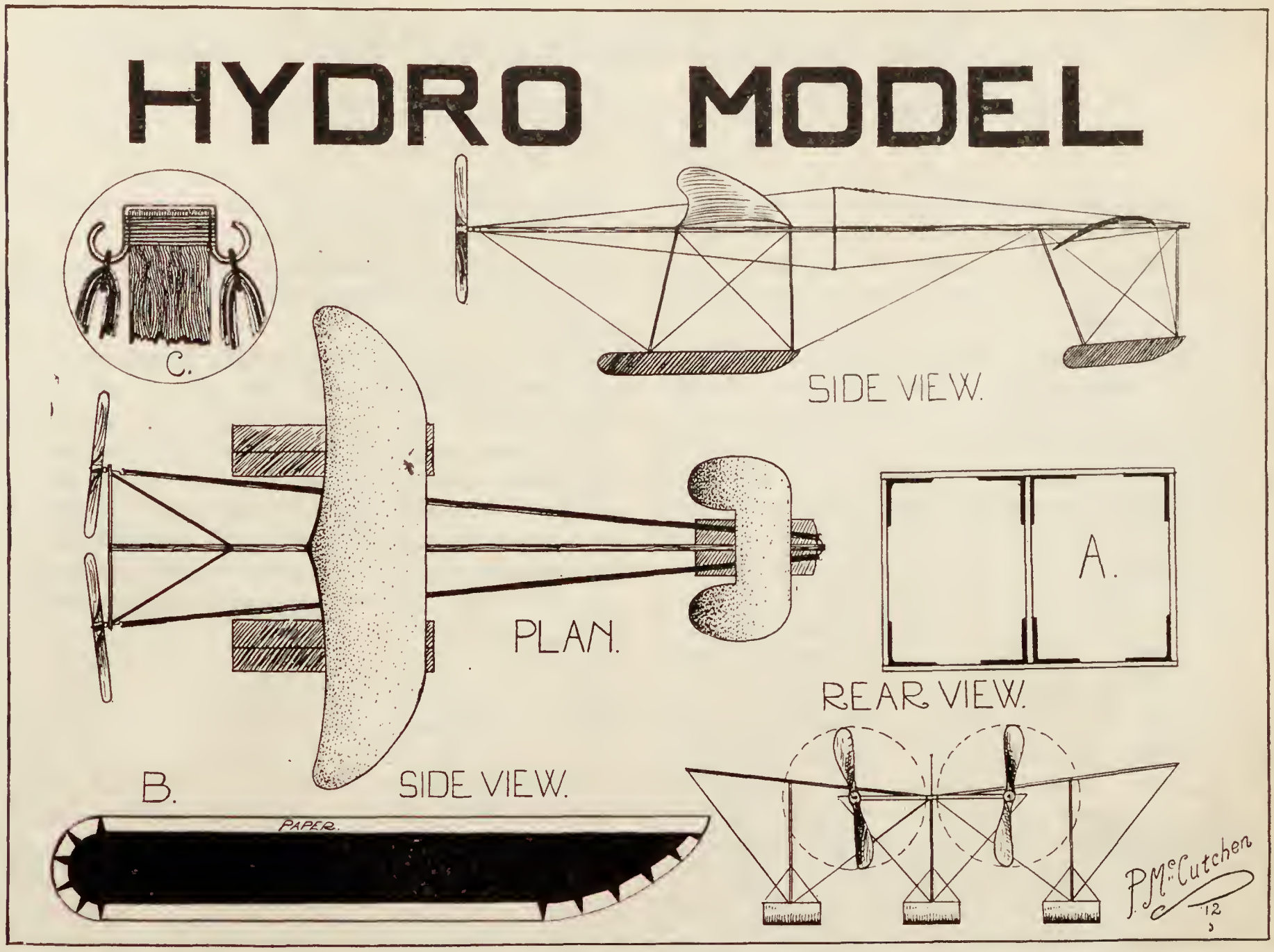
In constructing a hydro model it is best to begin with the floats. The two rear pontoons are 10 inches long, 2½ inches wide and 1¼ inches deep. The front float is 6 inches long, 2½ inches wide and 1¼ inches deep.

Secure a sheet of Bristol board about 1/32 of an inch thick, draw the outlines of the sides, top and bottom on the cardboard and then cut out the parts with a sharp pair of shears. The joints are made by glueing strips of linen finish paper to the parts as shown at *A* and *B* in the drawing.

When this operation is complete the entire float should be covered with tissue paper. It requires two layers and each layer should be glued on with the utmost care to insure the joints being perfectly tight. As soon as the glue is thoroughly dry each pontoon should be given three coats of shellac to render them absolutely waterproof.

The floats should then be laid aside to dry and the construction of the model proper begun.

The principal dimensions of the machine are as follows: Length over all 34 inches; spread of main wing 24 inches; width 6 inches; spread of elevator 10 inches; width 2½ inches. Propellers are 8½ inches in diameter and have a pitch of 19 inches. The struts that support



the rear end of the model are 6 inches long while the forward struts are 6¼ inches long.

The wings are made of strip bamboo in the usual manner with shellac-coated silk for a surface.

Care should be taken in making the joints with glue as the slightest wetting will ruin the structure if the entire wing is not covered with shellac.

The motor base is made of a strip of spruce ¼″ x ⅝″ and 34″ long. Bracing is accomplished by fitting a king post and steel trussing wire. The method of fitting the propellers and drive is clearly shown in the drawing C. This illustrates the way the ring fittings are attached to the strands to facilitate the use of a winder.

About 50 feet of ⅛ inch flat rubber strand is used to drive the model.

The elevator and front pontoon should be made adjustable in order to secure the exact amount of lift necessary. The rear wing should be so made that the experimenter will be able to move it back or forward, as may be required, to properly balance the model when it is on the water.

With the Junior Members

By the Junior Ediior

NOW that the model hydro-aeroplane has become a success and several of the expert model builders have made excellent flights with them, FLY has decided to offer a few small prizes to encourage the members of the National Junior Aero Club to work with model hydros.

The rules of the contest are printed below. The opening date of the competition is far enough ahead to give every one a chance to enter. The contest will not open until July 1. No entries will be accepted that are mailed later than midnight of July 31. This is the closing date.

Here is an opportunity to win a prize. Start work now and be ready to submit your flights for the competition early in the month.

If you are not a member of the National Junior Aero Club, join now. There will be another contest started in the next issue.

Dirigible Climbs 9,860 Feet

A NEW record for height in a dirigible balloon, as opposed to the old spherical form, was hung up at Paris, France, on May 20, when La Motte Breuil in the new Clement-Bayard III ascended 9,860 feet.

The feat of the new dirigible was the more remarkable in that it was made in a driving rain.

The great machine worked splendidly, responding to its helmsman's will at all times, and maintaining headway even when directed into the teeth of the wind.

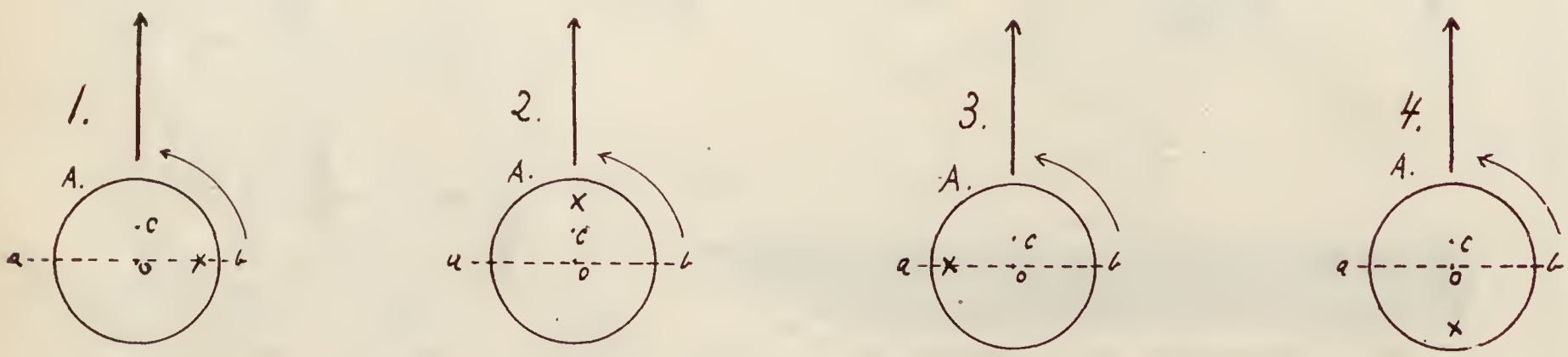
The Forces that Control the Flight of the Boomerang

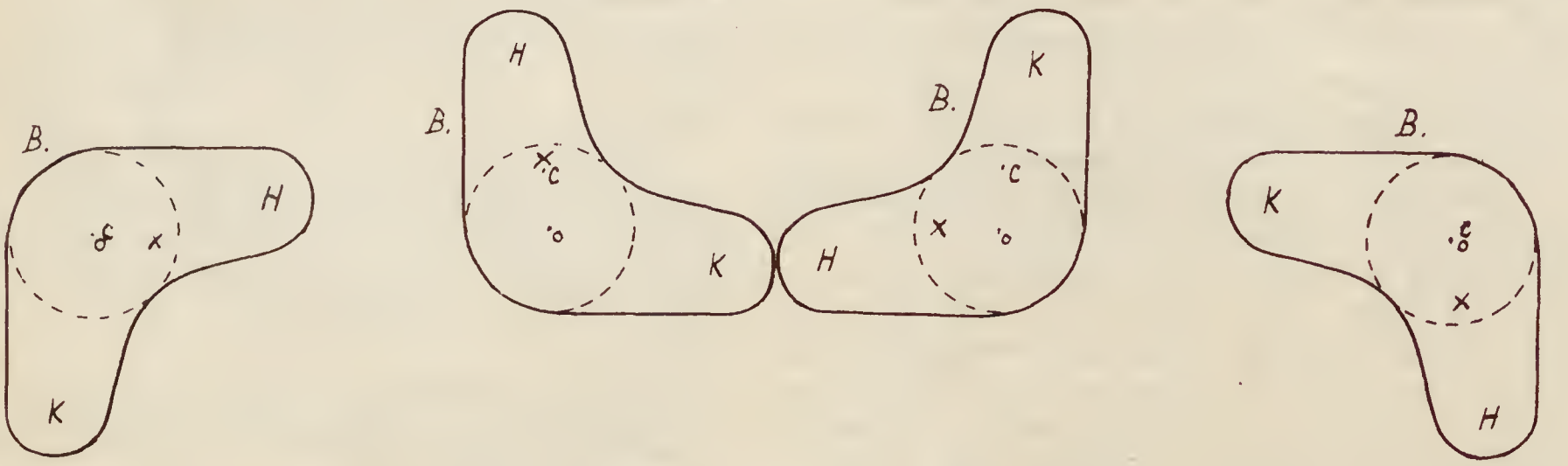
Its Intricate Relation to Air Current Pressures

By George A. Spratt, Jr.

THE boomerang has a scientific merit that should command the attention of every student of air current pressures. If seen in flight, no one interested in aviation could pass it by unnoticed; in fact it would hold the eye of anybody.

Its flight is curious, and has long been considered not unmixed with mystery. Much that has been attributed to skill, may be but a perfect unity of action between the individual flying quality that is structural to the boomerang, and the individuality of the manner of movement of the hand that throws it. By careful shaping, it may be fitted to the individuality of the hand through a wide range, as may be gathered from the latter part of this article.





The forces that control the flight of the boomerang are complicated and intricately related, but very probably the tribes that have made and used them effectively for self-preservation, have never understood these forces, nor even attempted an analysis. They may not have originated the device, but they make and use it with the desired effect, and are a very primitive type of people. Kites have had their day; all that the boomerang needs, is an introduction.

A very general knowledge of the gyroscope, and of wing pressure, will enable any good whittler to make a boomerang, and a most fascinating sport will be found in throwing it to a mark. Judgment and dexterity are required for this, but to simply throw one, and have it return demands but little skill or strength.

The gyroscopic action alone can be best illustrated in the flight of a flat circular disc sent spinning through the air.

When thrown edge foremost, with its plane horizontal and spinning in the opposite direction as the hands of a watch, face up, the pressure against the under side centres at a point in front of the centre of weight, the value of the pressure represented at this centre is at its maximum at a small angle of incidence. It rapidly decreases to nothing at O degrees, and is coincident with the centre of weight at 90 degrees. This lifting pressure, taken with the downward pull of gravity, forms a couple that tends to rotate the disc from the horizontal, and while in this horizontal position, this couple attains its maximum value.

When thrown edge foremost, with its plane vertical, there is then no angle of incidence and gravity acts parallel with the plane of the disc, consequently no force acts perpendicular to the plane to rotate it from the vertical.

In proportion as the plane is given a slant, therefore, this couple is brought into activity.

In the figures, A in each, shows ¼ revolution of the disc. The arrows show the direction of advance, and the direction of its spinning. The centre of weight is at *o*,

the centre of the disc. The centre of pressure may be located at *c*, a point in advance of the centre of the disc.

Since the disc is spinning, the gyroscopic action causes the pressure at *c*, not so much to raise the advancing edge as it is to raise the left, and depress the right edges. It is as though the lifting pressure imparted at *c* were carried a little way before becoming fully effective. The result is that gyroscopic action overturns the disc, and support is lost as the right edge turns under. The course describes an ascending curve to the right, followed by a rapid descent. The simplest and easiest flight to produce with a boomerang is a glide with an upward curving course, poise, and return, and is obtained when thrown with the plane horizontal. To produce such a path, the effect of the centre of pressure must remain at *c*, and the gyroscopic action must be prevented from overturning the disc. This, the wings accomplish.

In the figures, at B, the same disc is represented, as under the same conditions, but with wings H. and K. Since the wings revolve with the spinning of the disc, each wing while on the right side, is advancing through the air with a speed equal to the speed of the disc plus the speed of its revolution, and while on the left side, its speed is that of the disc less the speed of its revolution.

If the speed of revolution is equal to the speed of advance, then the wing while on the left side has no speed relative to the surrounding air, and while on the right side, has twice the speed of the disc. Its position of greatest lift is, therefore, on the side that is gyroscopically depressed, (see wings, H fig. 1, and K fig. 2), and it exerts no lift while on the side that is gyroscopically elevated. (See wings H fig. 3, and K fig. 4.) The pressure against the wings, therefore, antagonizes the gyroscopic action of the disc.

Because of the pressure they exert to the right of the centre of weight, they give rise to a gyroscopic action that elevates the advancing edge. This pressure and action is dependent on the relative speed at the two sides, and is independent of the slant of the disc with the horizon.

The effect of the wings upon the location of the centre of pressure *c*, is interestingly peculiar, and is obtainable only by such angular arrangement.

As the wings pass in front of the centre of the disc, the centre of pressure *c*, moves farther in advance of the centre of weight, and as they pass in the rear, *c* recedes towards, or possibly quite to the rear of the centre of weight. In other words, the advancing edge moves toward or from the centre of weight at most opportune intervals; also, a wing is, and is not, at the right and at the left side at most opportune intervals.

The value of *c* may remain as though its position were unaltered from its location on the wingless disc, or, it may, possibly coincide with the centre of weight. Thus we have accomplished the object desired; preserving the centre of pressure in advance of the centre of weight, and overcoming the gyroscopic action.

The boomerang is a most simple embodiment, a most beautiful proportioning, of varying forces and time intervals, brought within simple command of the motion of the hand for a definite purpose.

In throwing it, different results can be obtained by differing the relation of the speed of spinning to the speed of advance, and also by launching it at one or another angle with the horizon.

While advancing with its plane slanting at a high angle, it may strike the ground and rebound into the air without farther interference with its flight, for it then advances rotating as a carriage wheel, and the arm that hits the ground may have little, or no speed relative to the ground. From such an angle, gyroscopic action brings it to a horizontal position from which its ascent begins.

In the ascent the angle of incidence is increased. This causes the centre of pressure to recede towards the centre of weight, gyroscopic action is then weakened, and it ceases to rotate the disc. When it poises before its return, the centre of pressure coincides with the centre of weight. Gyroscopic action now maintains the angle with the horizon, and the wings support the weight, or may elevate it.

The return glide re-establishes the pressure as they existed in the outgoing, but at opposite sides of the centre of weight, and in like proportion along the course. This returns the boomerang to the point of the start if the wings have supported it, if not, it falls short, if they have elevated it, it passes over the starting point, again to return.

The drawings are meant only to be diagrammatic, but they show a form that may be shaped into a fairly good flyer. In the better forms the disc portion is much cut away and the wings are narrow, but the principle of construction remains the same.

An improperly formed boomerang, when properly thrown, will show one of four faults:

First.—It may turn onto its right edge, deflect to the right, and descend. If so, the gyroscopic action is too pronounced. This may be corrected by lessening the disc area, by increasing the wing efficiency by arching them, or by giving them a small independent angle of incidence.

Second.—It may turn on its left edge, deflect to the left and descend. If so, the wings are too efficient.

Third.—It may rise, poise, and only partially return. In this case, it is too heavy. It may be lightened by thinning, or may be made a more efficient weight carrier by making it concave beneath, and convex above.

Fourth.—It may fail to rise, and if this fault is pronounced, may turn on its left edge and deflect to the right with descent. This is because the arching of the surfaces is too pronounced, and the centre of pressure has, in con-

Continued, on page 27

Flight Over Irish Sea

CORBETT WILSON, on a Bleriot monoplane, made the first successful flight from Great Britain to Ireland, on April 22d. He flew from Fishguard to a point abont three miles from Enniscorthy in County Wexford.

The flight lasted from 6 A. M. to 7.30 A. M. His machine was damaged in landing by running into an obstruction.



Photo, Courtesy London Illustrated News

Corbett Wilson

Last year, Robert Lorraine, the actor, made several attempts to fly across but fell into the sea near the Irish coast.

Leslie Allen, with whom Wilson made a wager to fly the Irish Channel, started to make the flight on April 16, and was not seen again.

On April 26th, Vivian Hewitt flew from Holyhead to Dublin in one and one-quarter hours. He landed in Phœnix Park and is the second man to accomplish the trip.

Military Aviation in Russia

THE naval and military school, at Sebastopol, is by far the most important and progressive of its kind in Russia. The number of students qualifying for a pilot's certificate is 302, including 102 commissioned officers and 200 non-commissioned and petty officers and privates.

The club school has fifty-five aeroplanes of home and foreign construction of all types. Long flights are a daily occurrence when the weather permits and the naval aviators are credited with making flights out over the sea for twenty and thirty miles.

Aero Club Members at Show

Friday night, May 17, was Aero Club of Pennsylvania night at the Aero Show in New York. Among those noticed about the exhibits were Clifford B. Harmon, Captain Hugh L. Willoughby, Lieutenant A. A. Cunningham, Oliver G. Simmons, C. P. Wynne, Arthur T. Atherholt, H. H. Knerr, W. H. D. Harris, and Louis J. Bergdoll.

Dirigible Parseval VI Destroyed

THE dirigible balloon Parseval VI was completely destroyed on May 25th, by being torn from her anchor by a squall of wind. One of the soldiers on guard near the balloon was injured by the flying tackle. The Parseval VI had just arrived and had been anchored in an open field.

The flexible dirigible balloons of the Parseval type have been almost as unlucky as the rigid Zeppelin dirigibles. Parsevel VI, which was destroyed, had already met with several accidents. It was severely damaged on March 16, 1911, by being dashed against the balloon shed at Johannisthal, near Berlin, and again near Brunswick on April 22, 1911. Parseval II was totally wrecked at Bitterfeld on May 17, 1911. Parseval III was badly damaged during a forced landing in a snowstorm near Bitterfeld on November 16, 1909, and Parseval V was destroyed by fire at Hannoversch-Muenden on June 27, 1911.

Man-Power Flights In France

ON June 2d, an interesting competition will be held in Paris, France. A prize of $2,000 has been offered to the first person who flies 33 feet with his own power. In order to insure that no assistance has been derived from the wind, the flight must bé immediately repeated in the opposite direction.

Many persons including several professional cyclists and two women have already entered the competition.

A prize of $20,000 is offered for a man-power flight from Paris to Versailles, a distance of seven miles.

Aeroplane Delivers Silk

FARNUM T. FISH on May 25th, flew from Chicago to Milwaukee to deliver a consignment of silk to a department store. He left Chicago at 11.19 A. M. and reached Milwaukee at 1.25 P. M.

When he reached Wilwaukee he was flying at an altitude of about 6,000 feet. He ran out of gasoline and was forced to volplane to his landing place.

Wireless from an Aeroplane

RECENT experiments made at Chartres, France, in sending wireless messages from aeroplanes, have resulted favorably.

On May 5, aviator Frantz, in his Savary biplane, carried with him in a flight, from Chartres to Etampes and return, a wireless outfit and operator. Highly satisfactory results were obtained at a distance of thirty-five miles. When the operator was flying at an altitude of 1,500 feet he successfully transmitted the words of a song.

TRADE TOPICS

Why Do They Do it?

The latest proposal of the Elbridge Engine Company is sufficiently unusual to warrant some comment. While the idea of selling aeroplanes at first cost so they can sell aeroplane engines appears an unique scheme it really is not so.

When Colonel Pope wanted to sell more Columbia bicycles than the market seemed willing to absorb he did not rest satisfied with increasing his bicycle advertising, but devoted himself to furthering the "good roads" movement. His idea was that improved roads would quickly lead to the more general use of the bicycle and that his firm would get its share of the increased business A similar idea is being worked out today by the Eastman Kodak Company. Wishing to increase the sale of their photographic plates and printing papers to photographers they are spending thousands of dollars in large advertisements advising people to have their photographs taken. Indirectly they will get returns.

The Elbridge Engine Company has simply adapted to the aviation business this idea of helping the other fellow first. They have arranged with leading manufacturers of aeroplanes for inside prices on their products in quantities, and the benefit of close buying they offer to purchasers of Elbridge engines. And the combination of inside prices on both aeroplanes and engines gives a resulting figure for the complete outfit just about one-half the usual quotations.

Sloane to Represent Deperdussin

The Sloane Aeroplane Company has purchased a passenger-carrying Deperdussin monoplane of the type with which Marcel Provost made the record-breaking trip between Paris and London. The machine will be delivered in a few weeks. It will be used in exhibition work and school work. This is the most advanced type of aeroplane in Europe, and is giving wonderful results in all kinds of work. The British Army has placed an order for forty Deperdussin monoplanes.

The Sloane Company will represent A. Deperdussin in America. They will also handle the Smith tachometer, which is the most reliable indicator made abroad.

Arrangements have been made with Anzani to handle his different types of engines in this country. He is now turning out eight styles of motors. They are two three-cylinder types, thirty-five and forty horse-power, respectively. Four six-cylinder types of forty-five, sixty, seventy and eighty horse-power. His newest types are a ten-cylinder, of one hundred horse-power, and a fourteen-cylinder motor of one hundred and forty horse-power. These are all air-cooled.

George Dyott has just returned from abroad, and has seen some of these motors in flight, and reports that they give wonderful results. With a little forty horse-power Y type motor they attain a speed as high as seventy miles an hour in some of the light monoplanes. This shows a remarkable efficiency.

Immediately upon his return Dyott will start the Sloane School of Aviation. Several pupils have been enrolled, and the success of the school seems assured. Dyott has had a great deal of experience in exhibition and cross-country flying, so that he is competent to instruct. He also was an assistant instructor in the Deperdussin School, near Paris, for several months.

Benoist Has Tractor Plane

The second pupil to qualify at the Benoist School within a period of seven days was Dr. F. N. Bell.

Bell has purchased a new tractor Benoist biplane with a parachute jumping outfit and with a partner is expected to make a tour abroad.

The tractor machine is quite popular at Kinloch field, and C. Ray Benedict, who has ordered one, expects delivery this week. One of the features will be room for sixty gallons of gasoline, in addition to passenger accommodations.

Philadelphia School Has Flying Grounds

The Society of Aeronautic Engineers has recently acquired aeroplane sheds and flying grounds at Washington Park, on the Delaware, where it will have both land and water machines, as well as one that is adjustable to both.

The students are working hard to finish the construction courses in order to start making real flights. Students are coming to the school from all parts of the United States, and all those enrolled seem well pleased with the management and faculty.

The Society of Aeronautic Engineers courts the fullest investigation at any time and interested persons are welcome at their own convenience. The visitors to the school are numerous and favorable comment is heard everywhere regarding it.

The "Cellulose Turbo-Motor"

In view of the general demand for a motor for models other than rubber, and other elastic motors, the Cellulose Turbine motor was placed on the market in October of 1911. After selling several hundred it was concluded that the demand was supplied, and decided to quit selling them in March of 1912, but after one month, under a constant rain of inquiries, and orders both original and duplicate, the company reversed its decision and are ready to supply customers with the original product much improved.

In presenting an explanation of this motor you are referred to the "Fourth of July pin-wheel," which in some respects is similar to this turbine. They both get their motion from the reaction of the escaping gas which is evolved from the slow burning of a powder mixture. They are different in that one is a spark producer capable of being run once, and that the other is a power factor and may be run many times; yes, an indefinite number of times.

The use of gunpowder for fuel is resorted to because it is the only fuel that can be stored, burned and utilized all within one chamber. Secondly, because the gases evolved from the burning of gunpowder when expanded equal 6400 times that of the powder burned. Steam equals just 1600 times the volume of the water evaporated, and besides requires an external heat. The use of gunpowder in a single chamber, with no pipes, tanks, etc., permits two important factors in motor construction. First, simplicity; and second, compactness.

Simplicity in every case is admirable, and even the uninitiated prefer it to intricacy.

Compactness in the motor eliminates head resistance, allows more room for plane surface, and very materially adds to the appearance of the plane.

Questions and Answers

A Department for All Aero Students

Conducted by A. Roe Bugg

Pittsburgh, Pa.

Dear Sir:

Are there any prizes open in the United States at the present times for cross-country flights?

If so, would you please name them in the Questions and Answers Department?

Yours truly,

A. V. S.

The only cross-country flights that I know of are those of the Great American Circuit described in the May issue of FLY.

Milwaukee, Wis.

Dear Sir:

Kindly inform me what make of machine was the monoplane that Bathiat used in his record-breaking flight of 100 kilometres in 41 minutes and 29 seconds, at Douzy, France, January 27?

Who are the agents for the Nieuport and Deperdussin monoplanes in the United States? What is the price of the same?

Are there any schools in the United States giving lessons on monoplanes where one could take up the course in aviation and pay for the same out of receipts from flights?

Yours truly,

P. J. S.

Bathiat used a Sommer monoplane.

The Sloane Aeroplane Company of New York are agents in this country for the Deperdussin monoplane. Write them regarding instruction and cost of machine. The Nieuport agency in this country is not active to my knowledge.

There are no schools that I know of that make such a proposition. You might consult our advertising index, however, and write some of them.

SanAntonio, Tex.

Dear Sir:

Would you be so kind as to tell me through the Questions and Answers Department what an automatic carburetor is?

Yours truly,

R. L. V.

An automatic carburetor is one in which the nature of the explosive mixture is regulated automatically by the speed of the engine, thus securing greater flexibility in the engine.

Daytona, Fla.

Dear Sir:

Has there been very much work done in this country with a helicopter? If so, who has done the most?

Yours truly,

H. M. W.

Probably Emile Berliner, the well-know inventor, has done more than any other man in this country. He has worked with helicopters at Washington, D. C., and according to reports has secured very good results. Some of his early experimenting along this line was done with an Adams-Farwell revolving motor.

Milledgeville, Ga.

Dear Sir:

Is there a patent on any instrument that will give the correct angle of an aeroplane both longitudinally and laterally?

Would such an invention be of any use to aviation?

Yours truly,

J. W. M.

An apparently very satisfactory instrument such as you mention has been invented by S. S. Curtiss, of Jamaica, N. Y. It was on exhibition at the Aero Show and will be used by Hadley in his flight from New York to Washington. Such an instrument will be very valuable to aviators. I suggest that you write Mr. Curtiss as I believe he has the article patented.

Three Oaks, Va.

Dear Sir:

Will you kindly advise of several causes for loss of compression?

Yours truly,

R. L.

Leaky valves, leaky piston rings, or breaks or cracks in the cylinder or piston may cause loss of compression. In testing for compression trouble operate the pistons by a hand crank—do not attempt to fire the motor. Apply a thick suds to all the joints in connection with the cylinder, and coat the outside of them. If there is a leak, the air forced into the cylinder will form bubbles in the suds about the leak. If there are no bubbles, the trouble is in the valves.

New York City.

Dear Sir:

When did Count de la Vlaux establish his balloon record for distance of 1139 miles?

Yours truly,

G. B. N.

This record was established by Count de la Vlaux and Count de Saint Victor on October 9-11, 1900. The time required for the journey was 35 hours and 45 minutes. It started at Vincennes, France, and ended at Korostichev, Russia.

Sedalia, Mo.

Dear Sir:

How can the water circulating system be cleaned out?

Yours truly,

P. S.

The water circulating system may be cleaned of impurities by filling up the tank with a strong solution of soda. After running the engine for a few moments, the soda solution must be drawn off and the system washed out with clean water. In making the soda solution, as much common house soda as the water will dissolve, should be used. Rain-water is the best for water-cooling systems.

FOR SALE Foreign rights of a Basic Patent filed 1900, covering in specific claims the whole present and future of aerial navigation. Every Government must have this for military purposes and will make the possessor a wealthy man.

The specific claims cover wheels, propelling means, automatic lateral and longitudinal guidance, and propelling means called soaring power; also horizontal and vertical manual guidance. Apply to,

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Seventy per cent. of record-breaking American flights with American Aeroplanes were made with propellers bearing this name

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Easy Home Study Course to start with. Write TODAY, for free lesson with detail blue print drawings on air currents.

STANDARD AVIATION CO., 1301 Manhattan Bldg., Chicago

(Continued from page 23)

sequence, been brought to occupy a position too far to the rear. A slight arching favors a long throw, for it delays the time of the rising, and in arching it, the edges are thinned, which reduces the head resistance.

In forming a boomerang it must be frequently tested, for correcting one fault is apt to develop another.

Much caution must be exercised when experimenting, or sporting with them, for they are hard to see, and their distance is hard to calculate when coming toward the eye. Their wings are sharp and are whirling, and they have a peculiar habit of suddenly arriving from a quarter from which nobody apparently could have sent them.

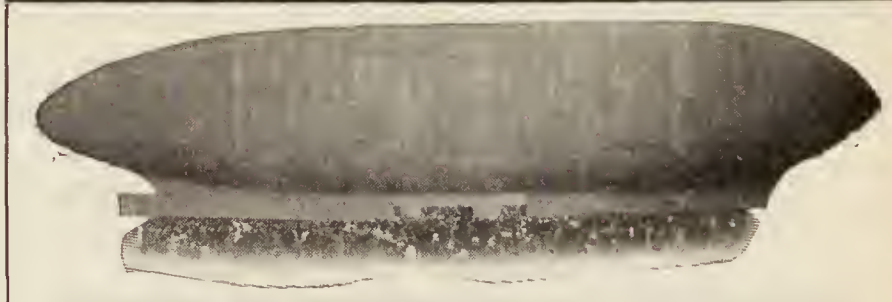
Rubel Offers Flying Grounds

Aviators who wish to try Gray Eagle motors are permitted to use the private flying grounds of the Rubel School of Aviation at Louisville, Ky., and free use of a motor is offered without any obligation of any kind.

This particular offer has caused a number of amateur aviators to bring their aeroplanes to Louisville and learn to operate them.

Flights are made daily at these grounds with Gray Eagle motors which are used in the school machines.

One other feature that is claimed by the manufacturers is the economy of fuel. They state that while running under full load at 1100 R. P. M. the motor consumes but three gallons of gasoline per hour.



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Now that the most up-to-date *completely equipped* balloons in *any size, or type* can be secured promptly and at *reasonabte cost*, ballooning has become one of our popular sports. At the same time it has opened up some most unusual money-making opportunities.

You don't have to wait for months and months to get a balloon.

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For this company maintains a complete balloon *department*—and a Special Service for the balloonist's benefit.

If you want a balloon for exhibition purposes, a Captive Balloon, a Free Spherical or a small Dirigible; if you want a big Dirigible for operating between cities; if you want a spherical for balloon advertising purposes, *WRITE US.*

You'll get quick, *prompt action.*

And *complete service.*

We'll supply you with any special balloon cloth you want—or a finished balloon of the type preferred—*will even supply the engines and all other equipment, if that will save you trouble.*

We've Searched All Europe To Give You the Best

Our balloon specialists are men of widest experience. We did not begin balloon building in an experimental way. We searched all Europe first. We studied and mastered European ideas. Then improved upon them. And we contributed to the industry the priceless knowledge gained during our many years of manufacturing rubber products.

Our secret processes of rubberizing with the finest para rubber makes our balloon fabric not only gas-tight and gas-proof, but also *most durable.* Varying degrees of heat or moisture do not harm it. It won't crack under the hardest usage. When rolled and folded closely, most balloon fabrics crack, but not so Goodyear fabric.

And please remember that we are now in a position both to *save you money* and a *lot of time* in making delivery.

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We are pioneers in the making of rubberized aeroplane fabric. And so thoroughly dependable has Goodyear Rubberized Aeroplane Fabric proven, that nearly every veteran aviator in America now uses it.

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A popular Goodyear Aeroplane invention is our Bleriot type Rubber Shock Absorber.

Drop us a line stating, in full, which of our balloon or aeroplane products you are interested in. We will forward you further information of vital interest. Write to

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BLUE PRINTS showing the most economical and simple acroplane running gear ever designed. Inexpensive, easy to construct, low head resistance, and will save you many breakages. Two large sheets, showing all details, one dollar. M. S. Lewis, 830 Isabella street, Oakland, Cal.

CAPITAL WANTED—$15,000 to form a new company to build a lately patented, high-speed monoplane, that is automatically balanced and acts as a parachute in case the motor stops while in the air. The machine itself acts as a parachute, and has absolutely no umbrella-like or auxiliary parachute attachment. Address Monoplane, Post Office Box 66, Station D, New York, N. Y.

WANTED—Aviation apprentices to operate latest type racing monoplanes. Instruction frec. Address Box 75, care Fly Magazinc, Bulletin Bldg., Philadelphia.

BUILD an Aeroglider and FLY. Simplest, most inexpensive, 22 ft. wide. Designs and instructions, $0.50. Aeroglider Co., Box 262, Grand Rapids, Mich.

UNLIMITED PRACTICE and one-sixth interest. Three machines, $400. Aviators' Exchange, 58. W. Washington street, Chicago.

YOUNG MECHANIC wishes to help you build or fly your aeroplane. Have had experience in building biplane. Can give reference from competent aviator. Address Box 80, care Fly Magazine, Bulletin Bldg., Philadelphia.

BACKER—Young man, aeroplane mechanic, needs $150 for expenses, to learn to fly. Have plenty of nerve and energy and will prove this a good investment. Forty per cent. of earnings guaranteed to person who will advance this amount. Address Box 68, care Fly Magazine, Bulletin Bldg., Philadelphia.

WANTED—An aeroplane. Must be cheap for cash. State make, motor, etc. George H. Perkins, 18 N. Main street, Concord, N. H.

FOR SALE—Hall-Scott 60 H. P., 8-cyl. engine. Never been used; including propeller, etc., $1500. Address W. N. Murray, Standard Automobile Co., Grant Blvd., Pittsburgh, Pa.

DIRIGIBLE—For sale, two complete dirigible airships. C. J. Strobel, Toledo, Ohio.

FOR SALE—30-40 Gray Eagle Motor and propeller. Complete. Fine condition. $350. Frank Heitz, Ashland, Ohio.

$200 TAKES a 36-ft. Curtiss Type Biplane (without engine), or will exchange for motorcycle, or what. A, 1519 E. 63rd street, Chicago.

HOW TO CONTROL AN AEROPLANE—Used by the largest schools. The only book ever written on the subject. Price 50 cents. Aviators' Exchange, 58 W. Washington street, Chicago.

FOR SALE, $750.00—1 36-48 H. P. Fox aeroplane motor, with propeller, Bosch magneto, etc., ready to run, first-class condition, been used only two or three times. Original price, $1400. H. A. Meldrum, Buffalo, N. Y.

WANTED—A good business manager, by two aviators owning their own machines. Give previous experience, references, etc. Address F. J. Southard, Atlas Hotel, Dayton, Ohio.

WANTED—Buyers for our Macfarlane-Curtiss model propellers. Sizes, four to twelve inches. Cost, five cents per inch. Robert S. Macfarlane, 2129 Lake Terrace, Seattle, Wash.

FOR SALE—At a sacrifice, Curtiss type aerpolane, with 6-cylinder, 90-horsepower motor. Will sell motor separately, or outfit complete. Write for particulars to B. A. Blenner, Richmond, Va.

YOUNG MAN wants to learn to fly. Will fly for one who teaches me. I am eighteen years old and have lots of nerve and ambition. Have had some experience. Address H. W. L., Box 8, Monument, Pennsylvania.

MODEL SUPPLIES Send for free price list and sample of NURU rubber strands.

R. G. R., holder of the Pacific Coast record, writes: "I consider NURU the best rubber by far, that I have ever used."

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A few of the most prominent owners of our Bleriot-Type Monoplanes are

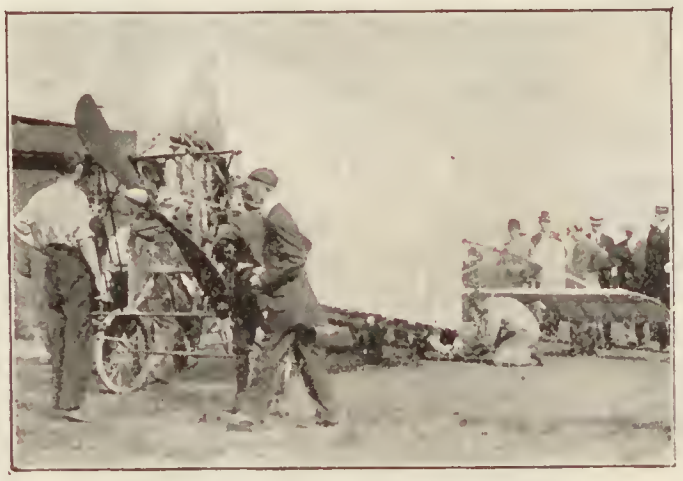
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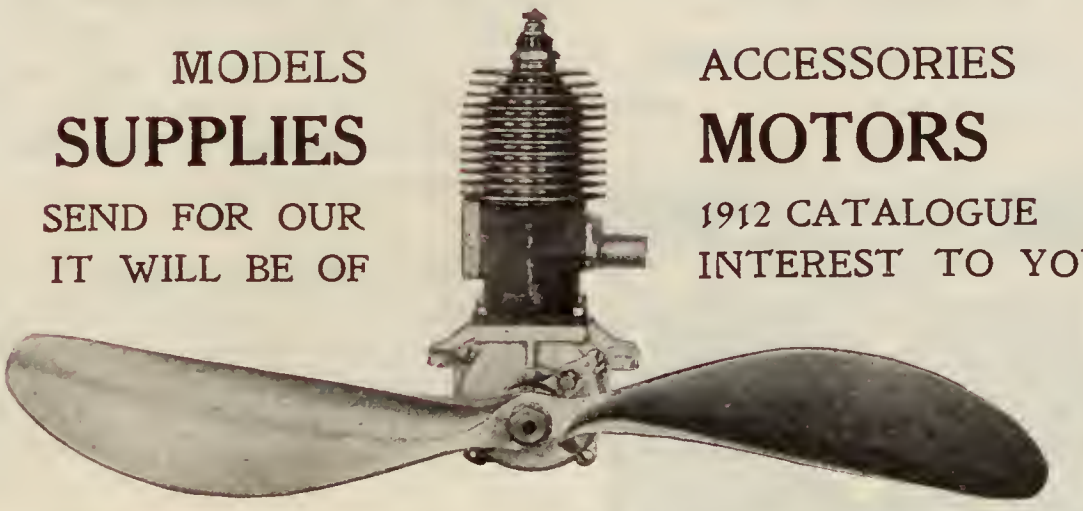
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EUROPEAN PLAN **Send for Booklet**

Aviation Jottings

Yves de Villers, of the Aeroplane Motors and Equipment of New York, had a thrilling aeroplane flight while in France recently. He was visiting the Morane training camp when he received a cablegram to return to America at once. Tabuteau wheeled out a passenger-carrying Morane monoplane and with de Villers as passenger started on a thirty-mile flight to Paris. They covered the distance at the rate of a mile a minute and de Villers just had time to motor to his hotel, get his luggage and catch the train from the Gare de Nord connecting with the Kronprincessin Cecelie at Cherbourg.

Oliver G. Simmons is flying the Wright hydro-aeroplane daily at Wickatunk, N. J. The "Laredo" is also assembled and Simmons will fly at Freehold on Decoration Day.

Oscar Brindley, the Wright aviator who has been flying with Louie Mitchell in the South during the winter, was an almost daily visitor at the recent Aero Show in New York.

Clifford Webster, who has been doing good work with the Burgess hydro-aeroplane in the South, was at the Burgess Company and Curtis booth during the Aero Show.

George Dyott, who flies the Deperdussin monoplane and is instructor at the Sloane School of Aviation on Long Island, has been chosen to represent England in the Gordon-Bennett race. It is said that he will fly a new Deperdussin equipped with a 140 H. P. Gnome.

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HAVE BEEN IN DAILY USE FOR TEN YEARS. THIS IS OUR NEW 72 HP. AVIATION MOTOR—450 LBS. THRUST WITH 9 FT. PROPELLER OF 6 FT. PITCH.



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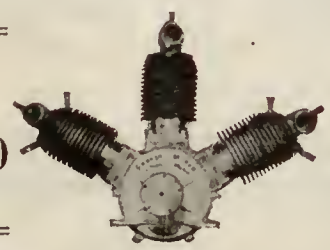
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$350.00 — 125 lbs.
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Chicago International Contest, 1908, 9 competitors, 1st for distance and Endurance.
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St. Louis Centennial, 1909—1st, 2nd and 4th money.
Peoria Contest, 1909—1st and 2nd money.
Indianapolis National, 1910—2nd money.
Kansas City National, 1911—1st, 2nd and 3rd money.
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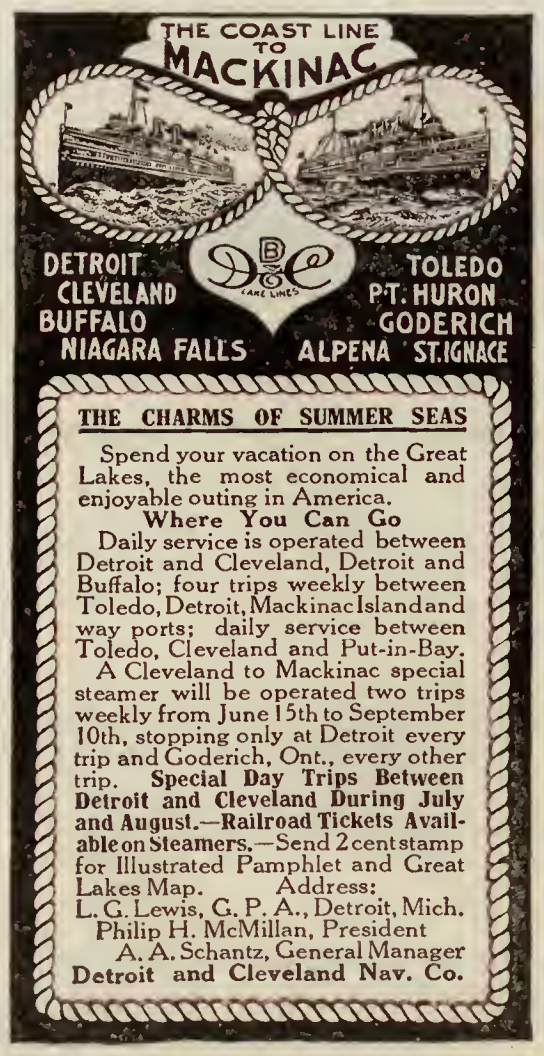
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PHILADELPHIA, - - PENNA.



J. A. D. McCurdy, the popular aviator of the Aeroplane Motors and Equipment Company, was much in evidence at the Aero Show. He sold a number of motors, and says he sees big things ahead for aviation in this country this year.

Farnum T. Fish, the young Wright aviator, was arrested in Chicago the other day for landing in Grant Park. The officer making the arrest called the aviator's attention to the city ordinance, which forbids an aeroplane, balloon or other aircraft landing in any park or highway without a permit. Fish said that he struck an "air pocket" and was forced to land. The policeman said that there was no provision made for landing in case of accidents and he took Fish along to the station-house. An official of the local Aero Club signed Fish's bond and he was released.

Miss Harriet Quimby, the first woman to cross the English Channel, will be an attraction at Cicero Field, Chicago, for four days, beginning May 30th. Miss Quimby will fly under the auspices of the Aero Club of Illinois.

Cromberz, a well-known Belgian airman, on May 21st flew from Nieuport, Belgium, to St. Margaret's, near Dover, England, and returned to his starting point without alighting. The length of the trip was 150 miles and was covered by the daring airman in 140 minutes.

Gustav Hamel, accompanied by a young woman as a passenger, flew over the English Channel on May 21st for the fourth time. Hamel had attempted to make a continuous flight from Issy, France, to London, England. Fog prevented this being done.

Avaitor J. H. Worden, who graduated from the Moisant Aviation School at Hempstead Plains, L. I., last year, has joined the Moisant aviators and started in exhibiting at Childress, Texas, on May 4th. Clarence de Giers, another graduate of the school, has been flying under the Moisant management at Panama. Moving picture films of the canal have been taken by de Giers from his monoplane.

Lincoln Beachey made the final tests of the new Curtiss war machine built for the government on May 10th. In the official trial at College Park, Md., Beachey climbed 2,200 feet in ten minutes, and with a useful load of 687 pounds made 49 miles an hour.

Aeronautic Notes

George Beatty and Marshall Reid, in a Wright biplane on May 4th, undertook to make a passenger-carrying flight from New York to Philadelphia. Near Elizabeth, N. J., the engine went bad and they were forced to descend, wrecking the machine in landing. Neither of the aviators was hurt. Reid is said to be contemplating another attempt when repairs on his machine are completed.

On May 22nd Clifton O. Hadley, accompanied by E. W. Roberts, designer of the famous two-cycle motor which bears his name, and W. S. McKean, vice-president of the Christmas Aeroplane Company, made a trip by automobile from New York to Washington to get an idea of the topography of the country preparatory to the mail-carrying flight by Hadley.

A new Wright biplane has been recently brought to the Army Aviation School by Orville Wright to test it out for military purposes. One of the features of the machine is the double system of control by which both operators may use right-hand levers.

Grover C. Bergdoll, the well-known motor car driver, has recently completed his course of instruction at the Wright school and has returned to Philadelphia with a Model B biplane. Bergdoll arrived at the school on a Saturday and Welsh had finished with him by the following Thursday. Bergdoll has been making a number of flights in the vicinity of Philadelphia.

Hillery Beachey, the noted St. Louis, Mo., aviator, narrowly escaped death at Winnipeg, Canada, on May 25th, when he lost control of his aeroplane and fell 100 feet.

Despite the height from which he fell the aviator was only slightly injured. The machine was demolished.

Alfred Leblanc, Emile Dubonnet and W. Jourdan have been chosen to represent France in the Coupe Internationale des Aeronautes. It has been decided by the Aero Club of France that the preliminary trials will be dispensed with.

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The Greatest Known Thrust per Rated Horsepower

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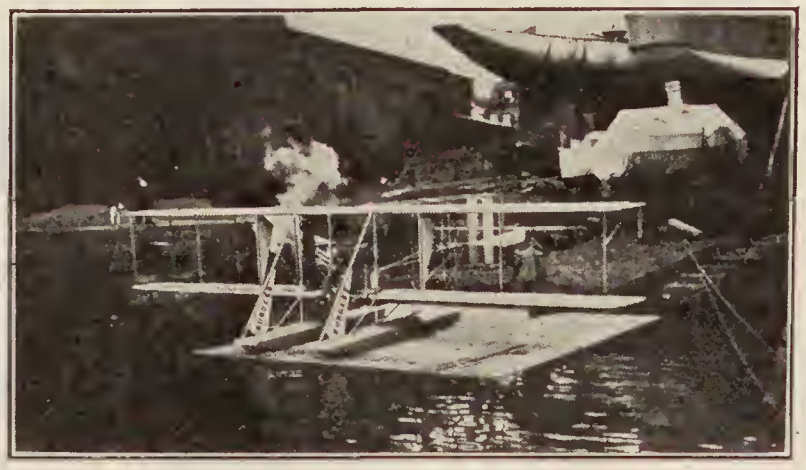
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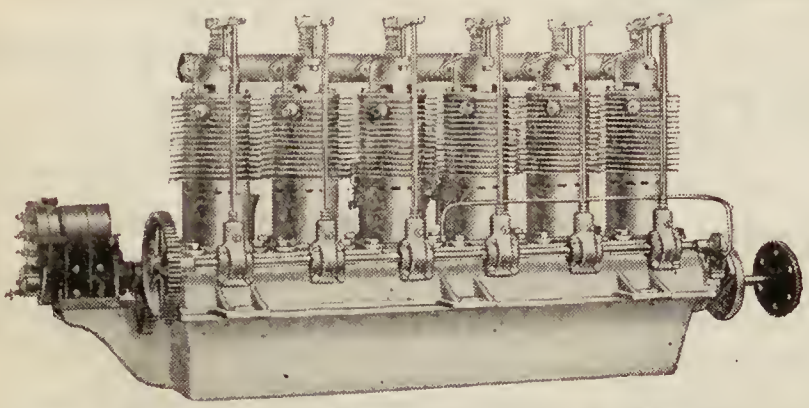
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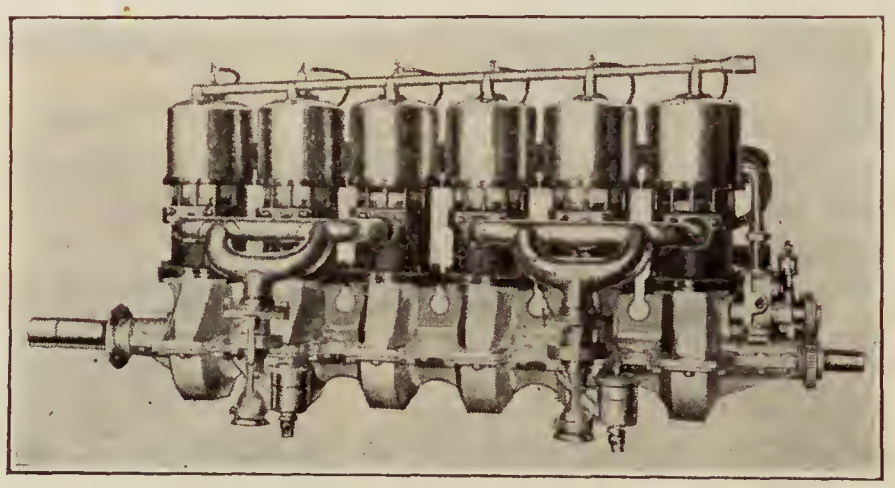
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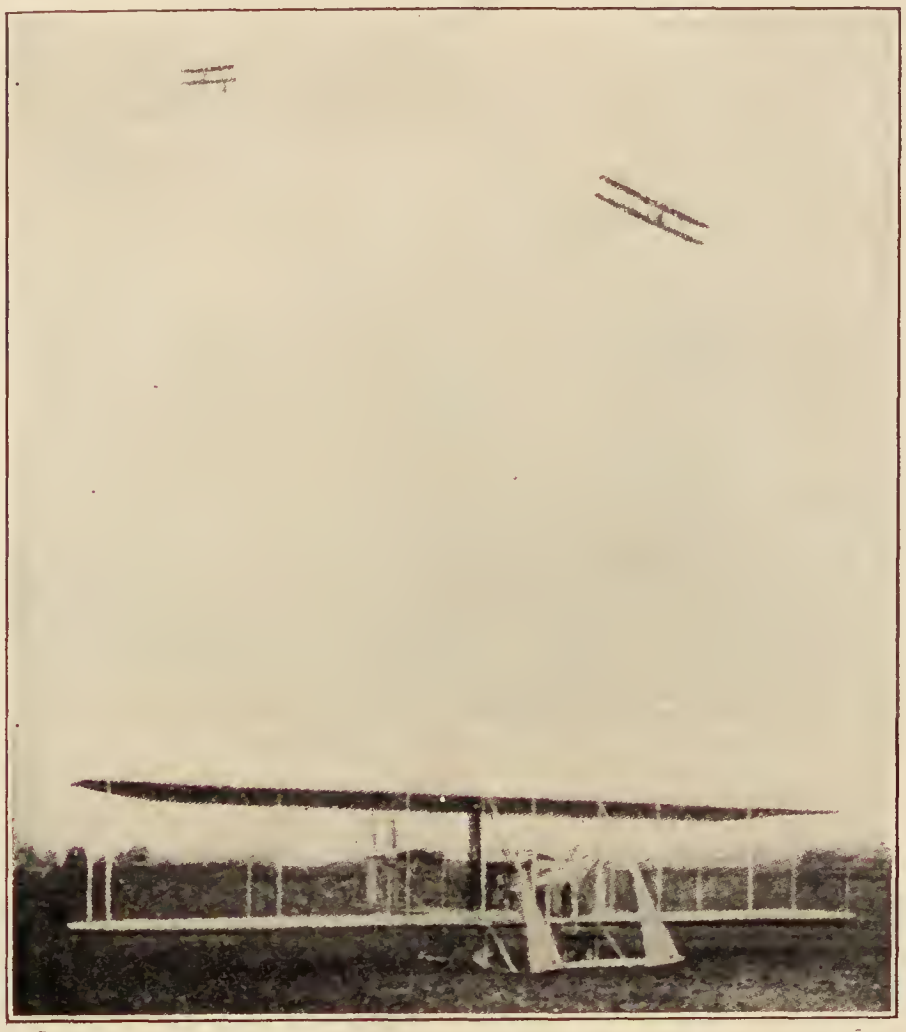
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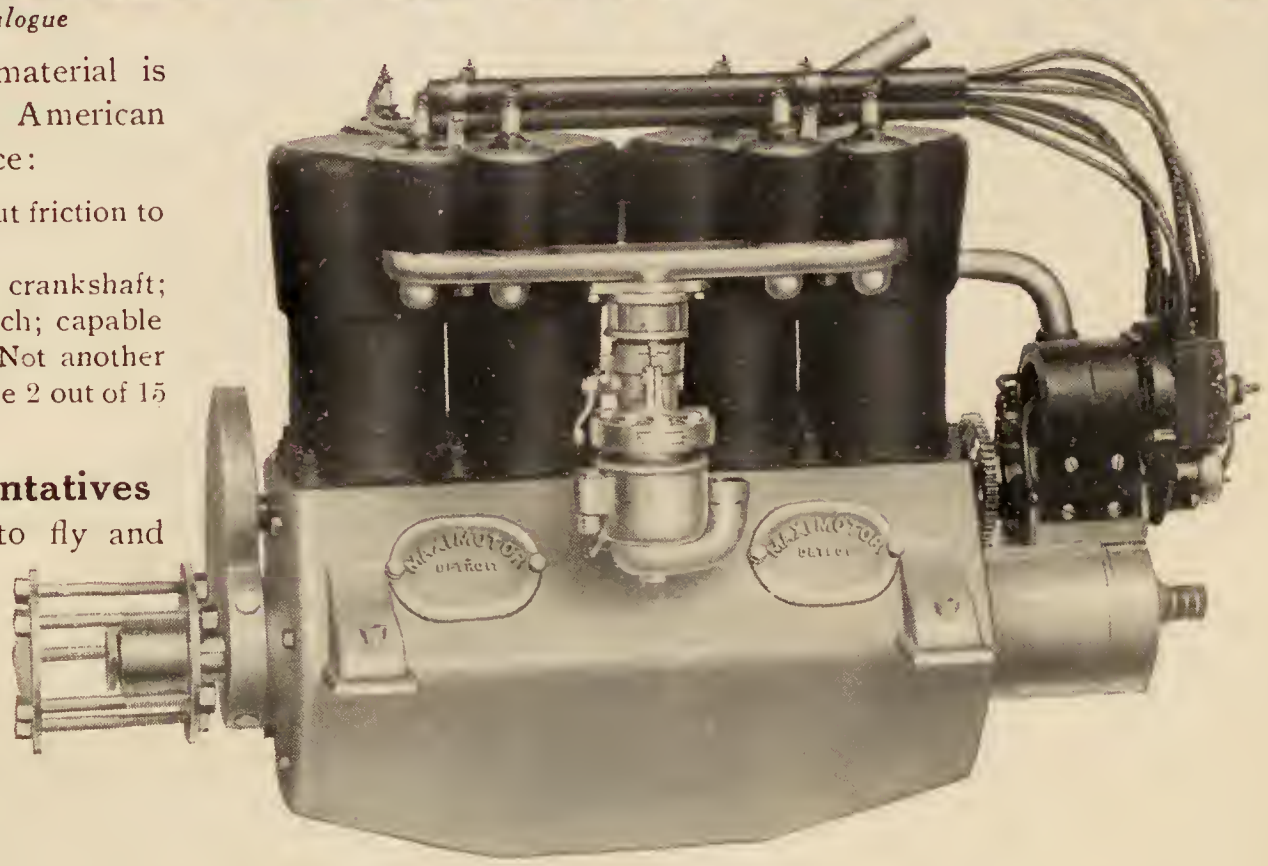
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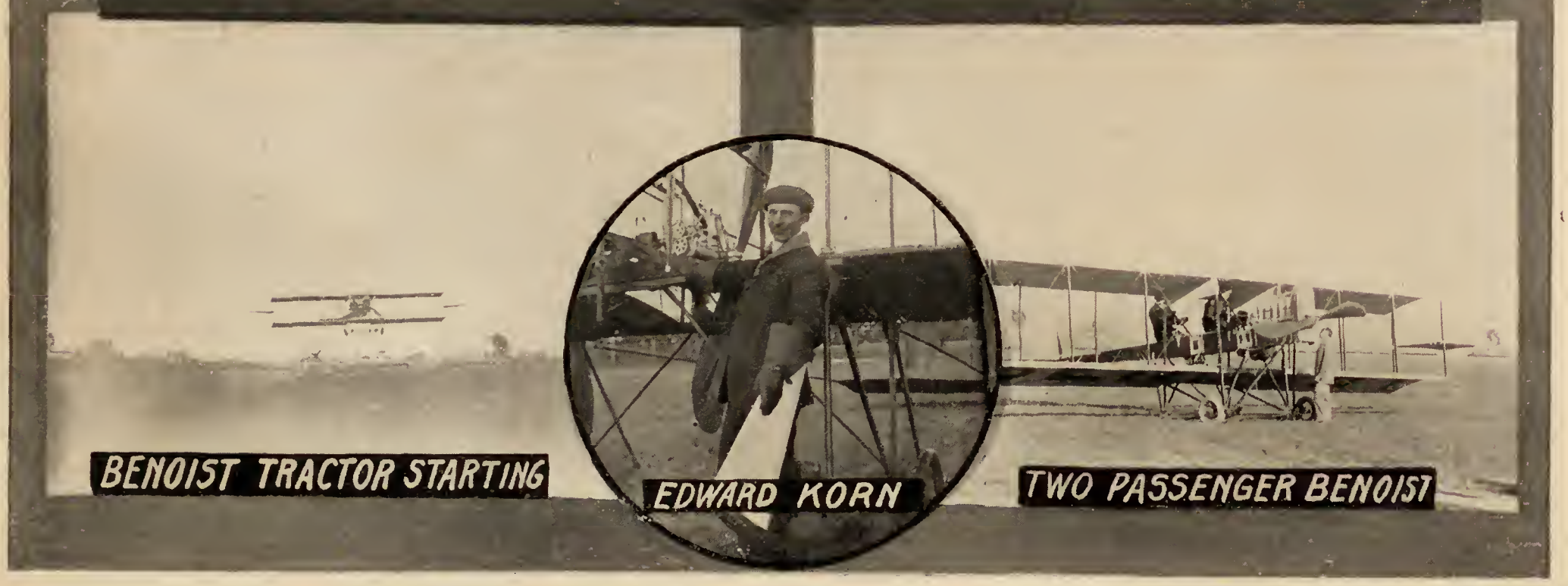
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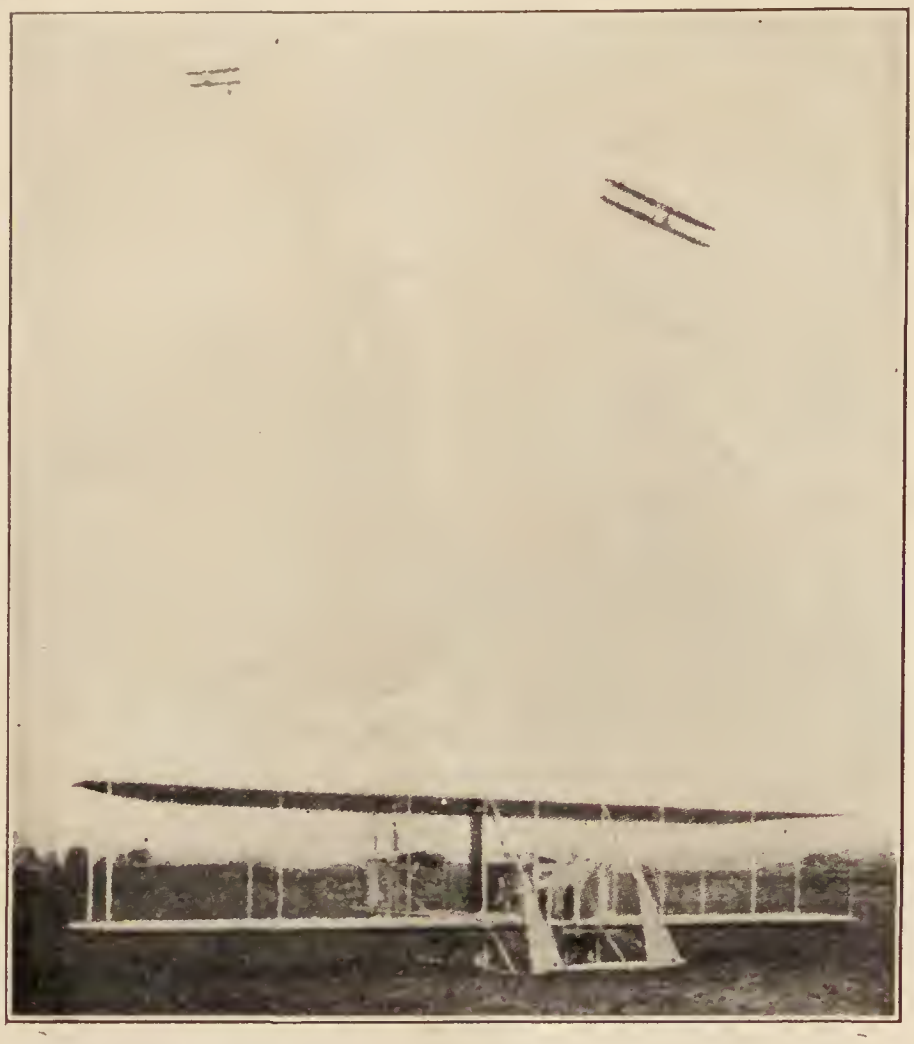
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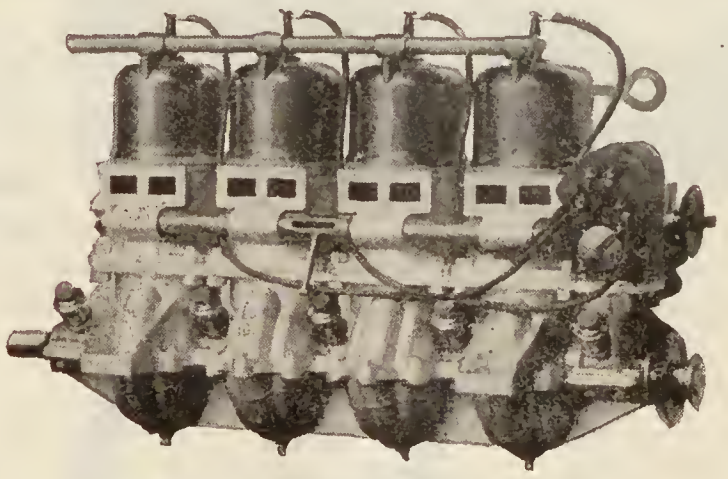
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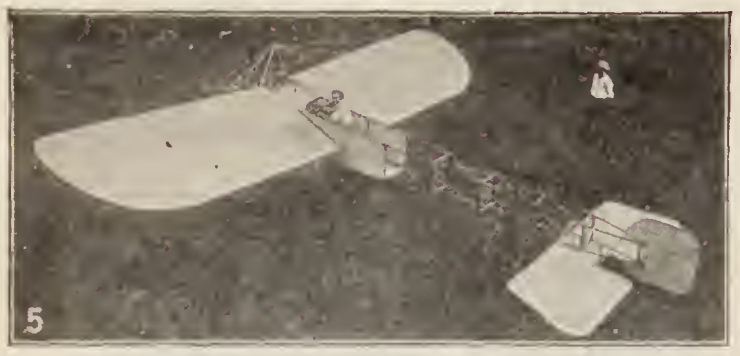
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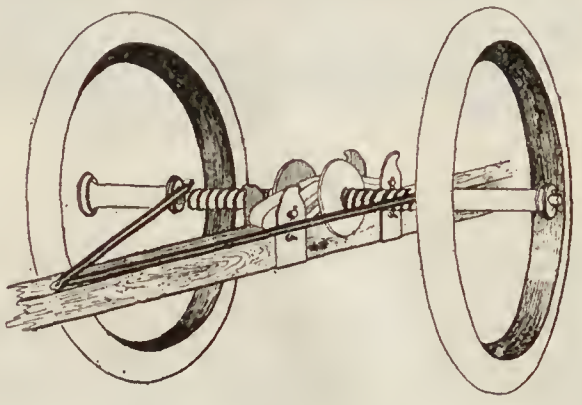
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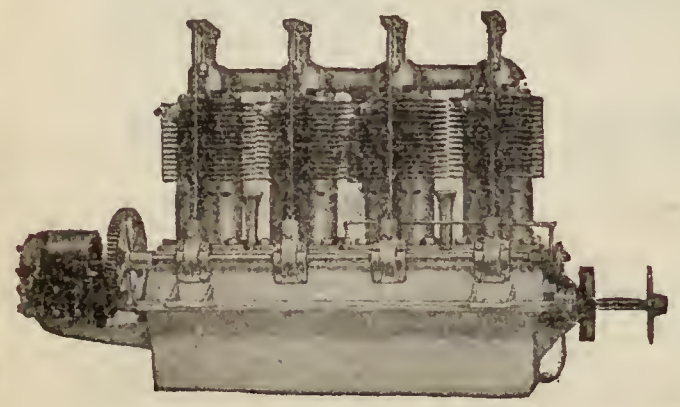
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The National Aeronautic Monthly

VOL. IV JULY, 1912 NO. 9

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The Real Conquest of the Air

An Editorial

NOT content with taking from us Wilbur Wright, Death has flown with the aviators in the air and laid a grisly hand on three. In rapid succession, Parmelee, Welsh and Hazelhurst have met with fatal accidents. When men like Parmelee and Welsh, the most careful American aviators that ever warped a wing, fall victims of the powers of the air, we may well wonder where it will stop.

Many aviators have been killed before. Some were forecasted; their methods foretold the end that surely came. But here were two men with world-wide reputations as skilful and careful aviators, and they, too, have made their last flights.

It should be noted that Parmelee was killed in a tractor biplane, built lately under his direction. But, although it had Wright controls, it differed from the Wright biplane in other details. Regarding the deaths of Welsh and Hazelhurst, it can only be noted that Welsh tried to make the machine perform a feat that it was not able to do.

As in the case of all the other deaths, we are confronted with the query, "What additional knowledge has been gained by this fatality?" And we are forced to answer that we have gained nothing. But there is one important thing that all these fatalities go to prove; the limits of the present day machine. And this causes us to stop and think, and wonder just how much development there has been in aeroplanes since the first machines were flown.

Just how many radical changes have been made since the first machines made flights? The curve of the planes may have been changed, and perhaps there have been some differences in the method of wiring and trussing, but the real development has been slow. This is true with practically all the machines in America.

Aeroplanes may have mahogany seats covered with plush, struts painted with aluminum, planes covered with beautiful cloth, with every conceivable instrument attached to the machine that could be of use to an aviator, but all these are but refinements, and do not constitute progress.

To put the matter fairly and squarely, and not to do an intentional injustice to the living or the dead, has not commercialism been placed ahead of scientific investigation?

Before powered flight became a possibility every man who interested himself in the study of flight, did so unquestionably from scientific motives.

When Orville and Wilbur Wright made powered flight possible, they still continued their scientific investigations. Then came the era, when everyone who could fly reaped the benefit of their discovery. Golden rain fell alike on the aviators, and the builders of the machines. The possibilities of the industry loomed large. Aviators possessing courage and daring, made a fortune in an hour. And during this period, is it not reasonable to believe that the scientific problems were put partly aside?

The people demanded aviators to amuse them. They were willing to pay the price and they did. Meanwhile, aviators had to be trained, machines built, and factories equipped to meet the demand. Did not all this take time and attention, and did not the science suffer in the meantime? Did not the development of the aeroplane suffer for a period?

We find aviators being killed today in attempting to repeat feats that caused death in 1910. Some wonder how it could happen after two years of development; the machines are no different today than they were two years ago, therefore, why should they be expected to repeat the feats that caused death two years ago, and live.

Captain Chandler, of the Signal Corps Aviation School, is quoted as saying, "The conquest of the air must go on." So it must, and so it will. Be it remembered, however, that conquest consists of mastery and subjugation.

Predicated on the experience of the early workers in other fields, history is about to repeat itself, and we will conquer the air. The human mind has conquered the difficult problems of electricity and transportation, and there is no reason to believe that it will not master the problems of flight. We daily see the toll of human lives collected, as men seek to prove their conquest of the air. But the blue sky guards her mysteries jeal-

ously. These deaths and misfortunes are but milestones to mark the onward march of a conquering world.

It is sheer folly to predict that men will not conquer the air. Men have set themselves to the task, and it will be accomplished.

What we want is safety in aviation. Put the aeroplane beyond the circus and the vaudeville stage; give it a place in the commerce of the world.

What we need in this country is an aeronautical laboratory to carry on scientific work. Is there any good reason why we should be outstripped in this department by France, Germany, Russia, Italy and Great Britain? We have men in this country competent to carry on such work. Why not give them the opportunity? A suggestion along this line has been offered by the Aero Club of Pennsylvania. It will be found on another page.

Let more time and thought be devoted to increasing the factor of safety in aeroplanes.

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OFFICIAL NOTICE.

A stated meeting of the Aero Club of Pennsylvania will be held in the Bellevue-Stratford, on Friday, July 5, 1912, at 8 P. M.

GEORGE S. GASSNER, *Secretary.*

CLUB NOTES.

The last meeting, while not so largely attended as we would like, was full of enthusiasm and gives promise of a busy summer.

The Club has adopted the Eagle Field as its official Aviation Ground, on which will be held its meets and races. This field is on the West Chester Pike, about three miles from the city limits, and can be reached for a five-cent fare from the Sixty-ninth Street Terminal of the elevated road. A fine concrete block hangar has already been erected by one of our members, and others are in prospect.

Mr. Grover Bergdoll, a member of the Club, flies almost every evening in his Wright biplane, and a number of the members have been carried by him as passengers. He flies very conservatively, and has made nearly one hundred flights without the slightest difficulty or damage.

The Club has also leased a tract of 125 acres of ground belonging to the Girard Estate, at Girard Point, Philadelphia. This land is very level and will be used as training grounds and as an experimental field for those wishing to try out machines. There are also fine facilities for hydro-aeroplanes.

The balloon ascension on June 1st, by Mr. Atherholt, with Mr. P. M. Sharpless, of West Chester, as passenger, was not of long duration, but was thoroughly enjoyable. The balloon landed near Mt. Holly, N. J., after a two hours' flight. An interesting feature of the day was the fact that the balloon was followed by an automobile containing several members of the Club. But for a delay in crossing the Delaware River, they would doubtless have been on hand for the descent. As it was, they brought the balloonists back to the city.

The balloon is being revarnished, and a number of ascents are planned for the summer.

American In Bomb-Dropping Contest

AN American flying as a passenger in an Astra-Wright biplane made a very good record in the contest held at Mourmelon, France, on May 26th, for the Michelin prize for bomb-dropping.

Gaubert, piloting an Astra-Wright, took up former Lieut. Riley E. Scott, who succeeded in hitting the target eight times out of fifteen.

A protest was raised, however, regarding the altitude of the biplane. It appears that the aeronoid barometer was out of order and did not register correctly. The protest will be dealt with by the commission in charge of the flight.

Lieut. Maillefert piloted a Henri Farman bipane, with Captain Couade as passenger. Captain Couade was able to strike the target three times out of fifteen trials.

Entire World Mourns the Loss of Wilbur Wright

Master Scientist a Victim of Typhoid Fever

THROUGHOUT the development of the aeroplane and the accomplishment of powered flight, Orville and Wilbur Wright have been so closely allied that the results cannot be accorded to either one or the other, simply to "the Wright brothers." It is, therefore, very difficult to pay a tribute to Wilbur Wright that would not be due Orville Wright as well.

It is doubtful if the last decade has seen the passing of a man so universally mourned and whose death has caused such widespread comment and sorrow as has the loss of Wilbur Wright.

It has been discovered, after much controversy, that Wilbur Wright was born near the town of Dune Park, in Indiana, on April 16, 1867, more than four years before his brother, Orville, who was born in Ohio.

The ancestry of Wilbur Wright can be traced through several generations in England. Samuel Wright, through whom the lineage was transplanted in America, came to Springfield, Mass., in 1736. His descendants took part in the Revolutionary War.

Wilbur Wright was one of seven chidren of the Rev. Milton and Susan Catherine (Koerner) Wright. Wilbur was the third child and Orville the sixth, twins having died. Two older married brothers, Lorin and Reuchlin, and Miss Katherine Wright are living.

Following Wilbur's birth, the father was successively a college instructor, editor of a religious weekly and Bishop of the West Mississippi. The family finally settled in Dayton, where they have been ever since.

The first interest of Orville and Wilbur Wright in mechanics dates back to their residence in Richmond, Ind., when they invented and built a turning lathe for their own use. They followed this with a private telegraph line, which really worked.

In early childhood the partnership was formed which has been ended only with death. The boys learned the printing trade in the office of a little church paper, conducted by their father. They became compositors, but showed their genius by the perfecting of a little printing press, built by them, which worked for years. They gave up printing to open a little bicycle repair shop in Dayton and built bicycles of their own design. Which one worked out the model of the press or which one constructed the bicycle has never been told. It was "the Wright brothers" then, as it always has been.

They were running that little repair shop in Dayton in 1896 when Prof. Langley's steam driven heavier-than-air machine flew three-quarters of a mile down the Potomac River, and also when in the same year the glider of Octave Chanute and A. M. Herring was making its foot by foot flights along Lake Michigan near Chicago.

Orville Wright had typhoid fever himself at this time, and when he was convalescent, Wilbur read to him the reports of the experiment and the brothers became so interested in their discussions that the doctors and nurses had to interfere. When Orville was well the gliding idea had struck "the Wright brothers." There was something fascinating about it. They took it up, first with kites and then with cloth-covered planes on slender wooden frames, just to see what they could do. It is not known how they divided their labors, but it has always been thought that perhaps Wilbur, lean, slender, hawkeyed, with a high bald forehead and a preternaturally reticent disposition, was the student and scientist of the two. Orville, also slender, but of a more lively disposition, social, inclined to conversation, but with an iron nerve, was the one to carry out the experiments.

Wilbur soon ceased to look at it as a plaything and started to study in earnest. Orville backing him up with his mechanical skill. The little experiments at Dayton soon grew into experiments along the North Carolina coast in the years of 1900, 1901 and 1902. They sought the coast not only for secrecy, as was afterward explained, but because over the dunes they could find the rising, spiral air currents upon which they were convinced the eagle, the buzzard and the seagull ride or coast for hours at a time without wing motion. Alone, with funds of their own, laughed at by the few who knew of their ambitions, they visited the sand dunes again and again, until in 1903 they first installed a 16-horsepower motor in an aeroplane.

With the utmost secrecy they carried the parts to Kitty Hawk and put the machine together. They had devised a weight-dropping catapult affair as a starter—one of the brothers climbed on the machine and the weight dropped. Which brother went up has never been told by either. However, a picture which is in the possession of the Wright Company, that is claimed to be a photograph of the first powered flight they ever made, shows Wilbur Wright watching the machine leave the ground.

This machine sustained itself in the air for 59 seconds and covered half a mile of space. The Wright brothers returned to Dayton to work for more money, hugging their great secret, which they had determined



Photo by Paul Thompson, N. Y.

WILBUR WRIGHT

April 16, 1867 — — May 30, 1912

was to be theirs until they received adequate compensation for it. They held it too until they got their reward. Wilbur Wright died a wealthy man.

"The sport of the thing appealed to us," said Wilbur in one of his rare interviews. "We had a savings bank account and thought that if we could get enough employment out of it, the money would be well spent. Ten years ago I had no more idea that I would go into the business of manufacturing a flying machine than that I would be President of the United States."

In 1910 the Wrights placed aeroplanes in exhibitions here and abroad under pupils graduated from the school of aviation at Dayton. These fliers turned over to the Wrights royalties for the use of their machines to the amount of $100 per day, plus a precentage of the prize money won. This year the Wrights have sold aeroplanes outright and have released their fliers.

In November, 1909, a corporation with a capitalization of $1,000,000 was formed to back the Wrights in their plans to manufacture aeroplanes at Dayton. The company provided that Wilbur and Orville Wright must defend their patents against all infringements, and it is said that the Wrights put into this work a large proportion of their winnings and Government awards.

Wilbur Wright was seized with typhoid on May 4, while on a business trip in the East. On that day he returned to Dayton from Boston and consulted Dr. Conklin, the family physician. He took to his bed almost immediately, and it was several days before his case was definitely diagnosed as typhoid. Throughout the early part of his illness Wright attributed his sickness to some fish that he had eaten at a Boston hotel. He explained to his physician, however, that he had no particular reason to believe that the disease originated from this source.

Wilbur Wright breathed his last at 3.15 A. M., on May 30.

To "the Wright brothers" belongs the achievement of being the first in the world's history to steer a machine in free flight by its own power. This record was made on December 17, 1903, at Kill Devil Hill, near Kitty Hawk, N. C.

Tributes from Americans

President Taft, who presented the gold medals granted by Congress to Wilbur Wright and his brother Orville, and who had frequently seen Mr. Wright fly, dictated the following statement:

"I am very sorry that the father of the great new science of aeronautics is dead and that he has not been permitted to live to see the wonderful development that is sure to follow along the primary lines which he laid down. He deserves to stand with Fulton, Stephenson and Bell."

Gen. Allen paid a high tribute to Wilbur and Orville Wright. "To them," he said, "is due the great credit of first publicly demonstrating to the world the practicability of dynamic flight. The success of the Wright brothers was not due to chance or to any accidental discovery, but to their persistence, daring, and intelligence in scientifically working out the different parts which go to make up their machine, and practically testing the same in flight."

Andrew Freedman, a director in the company, which was very closely associated with Wilbur Wright, said:—"He was a most remarkable man in every respect. His fund of knowledge on many subjects, his immense breadth of mind, and his remarkable character made him able on almost every subject, even those which were not related to his life study. He was kind, charitable and of the utmost consideration for every one, and in fact there was no quality desirable in a man which he did not exhibit time and again to those who knew him."

Earle L. Ovington said:

"The perspective which only the lapse of time can give is necessary before we who are interested in the development of the aeroplane can fully appreciate how great has been the loss of aviation in the death of Wilbur Wright."

W. Starling Burgess, of Marblehead, said:

"Mr. Wright is more responsible for the advancement in aviation than any who have been identified with it. His loss is a blow which will be severely felt by those who are trying to solve the many problems in connection with flying."

Harry N. Atwood, in speaking of the death of Wilbur Wright, said:

"In the death of Wilbur Wright the world has lost one of its greatest airmen. Had he lived he would undoubtedly have solved many of the problems of the science in which he was the pioneer."

Lincoln Beachey said:

"Had Mr. Wright lived, much that we do not know about the science of flying would have been discovered."

Clifford B. Harmon:

"His bearing as an aviator was only equalled by his undaunted efforts as an inventor, when with his brother he fought for many years, side by side, on an invention in which few believed. I feel that his work had just begun, and that the world has lost one of its greatest inventors and a man of the highest honor and integrity."

Oliver G. Simmons, aeronautical engineer and aviator, who knew Wilbur Wright both as a friend and as a scientist, said:

"Words are not adequate to express my grief at this sad news. To Wilbur Wright and to his brother Orville belong all the credit of making practical the theory of powered aeroplane flight. I am bewildered by his death and believe that it has set back many years the progress of aeronautics. The world will only realize in time the tremendous loss that it has suffered by the passing of the greatest aeronautic scientist of the age."

From an English Poet

ONE of the notable tributes to Mr. Wright is the following poem by "Touchstone" in the "London Daily Mail":

Father of flight, death claims him, and no more
Shall the loud-throbbing murmur of his plane
Draw up the eyes of men to see him soar.
No more shall skillful hand and teeming brain
Achieve new triumphs where his fame was won.
The simple, kindly heart today is stilled;
His labor o'er, his splendid task well done,
He rests as one whose mission is fulfilled.

'Twas his to realize the elusive dream
That man had cherished from far distant days.
Where Icarus essayed his madman's scheme
Ever he toiled by seeming endless ways.
By rugged paths towards the light afar
He bore the flag his dauntless soul unfurled,
Serene in faith of that bright guiding star
Which shone for him and his of all the world.

Though none today his vacant place may claim,
The works to which his fertile mind gave birth
Shall cleave the air to trumpet forth his fame
To all the distant corners of the earth.
His is the victory o'er the realms of air,
And still his name shall sound from sea to sea
As pioneer who claims his constant share
In all the wonders that are yet to be!

Mrs. Julia Clark Killed

IT is sad to record the first death of a woman aviator in this country, but such a fatality occurred on June 17th, at Springfield, Ill., where Mrs. Julia Clark, in attempting a flight at dusk, crashed into a tree and fell thirty feet to her death. She was caught beneath the wreckage and crushed, dying in an ambulance on the way to a hospital.

Mrs. Clark had been engaged to make two flights at the aviation meet to be held in Springfield on June 21st and 22nd, and was testing her aeroplane at the Illinois State Fair Grounds when the accident occurred.



MRS. JULIA CLARK

It was late in the day when Mrs. Clark attempted the flight. The light was poor and she had been warned not to attempt to cross the track. It is believed that she thought herself free from danger when she turned toward a clump of trees. The biplane appeared to strike a limb. It staggered and then crashed to the ground.

Mrs. Clark was twenty-three years old and a native of London.

The first woman to meet death was Mme. Deniz Moore, who fell while making a flight at Etampes, France, on July 21, 1911. The other French woman who lost her life was Suzanna Bernard, who also fell at Etampes, on March 11th last, while making a final test flight for an aviator's license.

Marshall E. Reid, a pupil of George Beatty, completed his New York to Philadelphia flight on June 18th. He left Princeton early in the morning and reached Philadelphia in 54 minutes. Reid started for Philadelphia on June 8th, but several mishaps delayed the completion of the flight until the 18th.

Rapid Progress In Dirigible Ballooning Abroad

America Neglecting Important Part of Aeronautics

THE trial trip of the Zeppelin III, made on June 1, should arouse in this country more than a passing interest in the development that is taking place abroad in the dirigible balloon. The accomplishments of dirigible balloons abroad are not brought as forcibly to our attention as are the accidents that occur to them; the accidents receive display heads on the front page of the daily newspapers, while the feats that go to prove their worth will be found in a six-line note set in agate in some obscure place on an inside page.

The fact remains, however, that the dirigible problem is one that this country will have to interest itself in sooner or later, and this year is none too soon to begin. With the exception of the Wellman balloon and the apparently unsuccessful "Akron," there have been no dirigible balloons of any size seen in America.

Captain Baldwin, Knabenshue, Captain Wild, Beachey and many others have been the pioneers in this country of a phase of aeronautics that must be developed sooner or later. The dirigible balloon is just as necessary to military aviation as is the aeroplane.

In January, 1912, Germany had at its disposal thirty dirigible balloons, and this number is being added to each month. These airships are flying almost daily in every part of that country, and it is not to be wondered that the people of Germany have already raised by public subscription more than $1,000,000 in a very short time for the advancement of aeronautics.

The French appropriation for dirigible balloons for 1912 is $1,600,000. In January, 1912, France had at its disposal twenty-one dirigibles, and every effort is being made to make the number equal at least to the German airship fleet.

Russia claims attention as a nation interested in the development of dirigible balloons because its military fleet comprised on January 1, 1912, eight airships. True, not as large or as expensive as those of the aerial fleets of France and Germany, but still a goodly number for a nucleus. They are adding Parseval and Clement-Bayard types, and without doubt in a short time will take front ranks with the other European nations with their dirigible fleet.

Italy, Austria and Great Britain have also interested themselves deeply in dirigibles, and they, too, will take their rank with the other nations. Great Britain has been unfortunate with dirigible balloons, but it is probably due, in great part, to the fact that they are so far behind France and Germany and that they have endeavored to develop a distinct type.

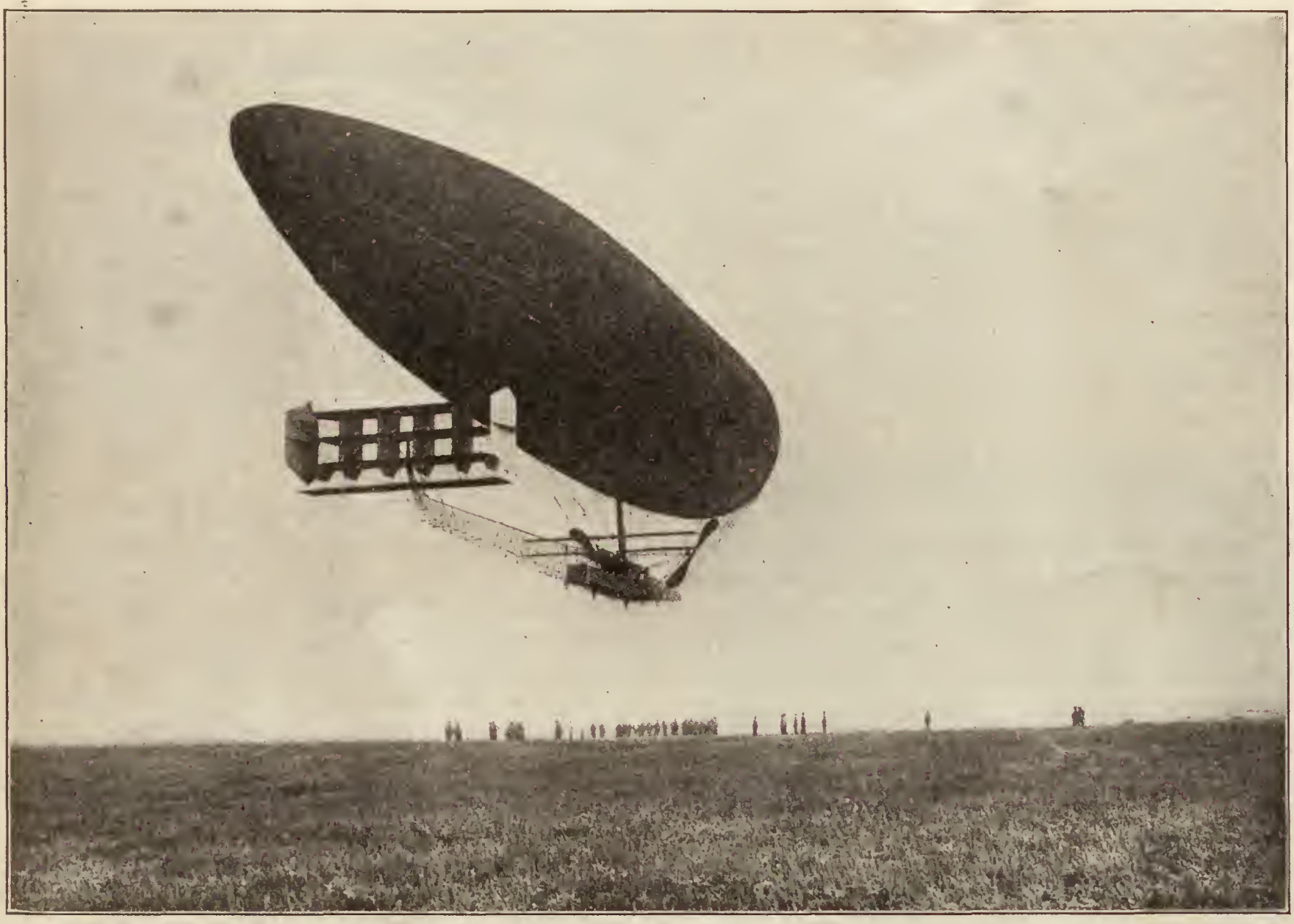
The dirigible has a place in military aeronautics that the aeroplane at the present time cannot fill. For night attacks and night scouting the aeroplane cannot compete, as the pilot of the heavier-than-air machine must be able to choose his landing place in case the motor stops or he cares to alight. The dirigible balloon, in case of motor trouble, at once becomes a free balloon, and while it can no longer control its direction it can ascend or descend, and remain in the air if it is desired.

Great loss of life was occasioned by the Italian dirigibles dropping bombs in the Turkish camps in Tripoli. The Turks could not elevate their field pieces enough to do any damage, and in the dark it was extremely difficult to locate the airships. While the German gun which has been designed for such work may prove effective, at the same time the night attacks of dirigibles will be extremely difficult to offset with aerial guns. Now that these ships are attaining a speed of forty to fifty miles an hour, a gunner will have some difficulty in hitting them in the daytime at even a slight altitude. Since the Clement-Bayard III has ascended to a height of more than 9000 feet, it would appear that the dirigible is rapidly combining some of the superior points of the aeroplane.

During the trial trip of the Zeppelin III it remained in the air 10 hours and 25 minutes and covered 450 miles at an average speed of 43 miles an hour. The record non-stop flight of an aeroplane is 460 miles, while the duration record of the aeroplane is 11 hours, 1 minute, 29½ seconds. It might be said that in this duration flight the distance covered was but 449 miles, so that the average speed was less than that of the Zeppelin III.

The advantages of the dirigible are rapidly attracting attention, and it will not be long before some wealthy man or company in this country takes the proposition up with the intention of making a success of it. If there were aeroplanes and dirigibles flying across the country every day, as there are in France, it is probable that we could raise a public subscription for military aeronautics as quickly as either Germany or France.

Aside from the military aspect, the dirigible balloon can be made a successful commercial proposition. The Zeppelin airship Schwaben, which made passenger-carrying trips last summer from both Baden-Baden and Dusseldorf, is reported to have had a successful season from a financial standpoint. This goes to prove that it is possible to make money from dirigible ballooning as a means of transportation.



The New Clement-Bayard III

There are all sorts of possibilities for this sort of inter-city transportation in the United States, but while there has been much talk, *nothing has been done.*

The writer has before him a clipping regarding dirigible balloon companies in the United States within the past two years.

Here is one, dated November 1, 1910, regarding a Detroit and Cleveland route: "The company plans to put airships in operation between Cleveland, Detroit and Buffalo. The Detroit-Cleveland line is to be established first for the distance is shorter. Passengers and express freight will be carried."

Another dated November 22, 1910: "Business men are interested in the establishment of a dirigible transportation company between Springfield (Mass.) and Hartford (Conn.)."

"One machine has been built and demonstrations will soon be made in Hartford."

From the "New York World," November 29, 1910. Dispatch from Atlantic City: "According to plans announced here today the United States is to have its first inter-city air-liner service, probably within the next half-year. President Charles J. Glidden, of the Aerial Navigation Company, of Boston, has invited Melvin Vaniman, chief engineer of the Walter Wellman expedition, to submit plans for a big dirigible suitable for carrying twenty passengers from Boston to New York, Philadelphia, Baltimore and Washington."

These are only a few of a large number. It is not that the propositions are impossible, but that there has been no attempt made, so far as known, to keep faith with these announcements.

The second balloon built to fly from America to England is in its hangar at Atlantic City, N. J., where it may be seen for a small admission. Its flights have ended unfortunately, to say the least, and it is quite probable that the Akron will now repose in its shed for an indefinite time.

It is, indeed, a great pity that this dirigible for some reason has not made good. There is no question but what the backers built the balloon in all good faith, and men who are willing to back a dirigible balloon proposition in the United States are certainly deserving of more success than they have met with thus far.

The other day one read that the dirigible balloon Parseval VI had been destroyed. But did any one stop to think of what that particular balloon had accomplished before it was demolished?

The Parseval VI had made 224 trips in Berlin alone and carried more than 2200 passengers. In addition to this, it had travelled more than 9300 miles. This does not look as if the dirigible balloon was such an uncertain or impossible affair. The record of this balloon alone is sufficient to warrant further work and development.

It is true that there is no Count Zeppelin, Major von Parseval, Major Gross, Colonel Renard, Lebaudy,

Clement, or Captain Krebs in America, but certainly such a man can be developed. The longer this country waits the farther it will have to go to catch up with other countries.

If a man cannot be found in this country to build passenger-carrying and military dirigibles, it is time to look elsewhere for one.

The early experiments of Count Zeppelin and others were very expensive and the outlay ran into hundreds of thousands of dollars. Today these men have their reward in knowing that the dirigible balloon companies of France and Germany represent millions of dollars. Just as ships are lost at sea, so will dirigibles be wrecked from time to time, but there is no more reason to refrain from building dirigible balloons in this country than there is from building ships.

Dirigible for German Navy

THE German Navy is about to make its first venture with dirigibles. Heretofore all the famous Zeppelin airships have been used exclusively by the German Army. The navy is about to take over its first dirigible, a Zeppelin cruiser.

Among the requirements that the airship will have to fulfill is one requiring it to remain aloft twenty consecutive hours without landing and to carry one ton of explosives.

Recent trips of the Zeppelin dirigibles of this type demonstrate that they are easily capable of a journey that will enable them to make a reconnaisance of the British coasts, dock yards and war harbors, and return to German territory without an immdeiate landing.

The Zeppelins are now equipped with powerful wireless sending apparatus.

Italy Has New Dirigible

AT the flying grounds of the Italian Army, near Rome, a new army dirigible recently completed its trial flights. They proved successful.

During the flights experiments were made with guns, which were mounted on the nacelle, and were fired at a captive balloon. The Minister of War was present throughout the experiments.

The new dirigible is the largest ever built in Italy, having a volume of more than 12,000 cubic metres, and being equipped with two 120-H. P. motors.

America, Wake Up!

A DISPATCH from Santiago, Chile, announces that the Chilean Government has decided to purchase four aeroplanes in France for the military aviation school which is to be established in Chile.

Popular subscriptions have been opened in the principal cities for the aviation fund.

"Aviettes" Fail to Fly

MOTORLESS aeroplanes, called "aviettes," have not yet solved the problem of flights judging from the results in the competition held in the Parc des Princes, Paris, France, on June 2. A prize of $2,000 has been offered to the first person who flies 33 feet with his own power. In order to make sure that the wind has not been responsible for the flight it must immediately be repeated in the opposite direction.



There Were Many of This Type

Twenty machines appeared for the contest but none left the ground. There was a nasty wind blowing which three years ago would have prevented an aeroplane from rising. Most of the machines were bicycles and tricycles fitted with planes.

Count Lambert, Voisin and Bleriot were present but none of them seemed impressed with the machines.



A More Promising Design

Voisin, who has made a study of "aviettes," points out that while probably the prize will be won before long, the mere fact of a short flight under such conditions will do little toward solving the real problem of "aviettation." According to the present knowledge of the laws of flight, says Voisin, it is necessary to develop 1-¾ horsepower to lift a man and "aviette" from the ground, and no one could keep up such an effort for twenty seconds.

The World's Leading Sportsman in Aviation



Photo. Courtesy of James H. Hare

Robert J. Collier (left) with his Aviator and Aeronautical Engineer Oliver G. Simmons

WHILE it may be true that the development of aviation in America has not equaled that in Europe, there is one department, at least, in which it excels. In no country has the aeroplane been used for sport as it has in America, and it can claim without fear of challenge the man who stands foremost in the development of flying as a sport. This sportsman stands forth as a pioneer in a field that is rapidly growing, and while in after days some other follower of aviation may claim more aeroplanes, more complete equipment and more aviators, none can take from him the honor of being the first in the field to use the aeroplane for the pure sport of it.

It is hardly necessary to say that this man is Robert J. Collier, president of the controlling body of aeronautics in America, and an aviator as well.

The Wright biplane christened "Laredo," with which the late Philip O. Parmelee made a record flight from Laredo to Eagle Pass, was the first aeroplane to come into his possession. This he loaned to the Government for the army maneuvers in Texas in the Spring of 1911. Then at the close of the encampment in Texas, the machine was sent to "Rest Hill," at Wickatunk, N. J., where Oliver G. Simmons, graduate of the Wright school, came to fly it.

Late in October, 1911, Mr. Collier gave a housewarming at "Rest Hill," and in addition to Simmons, there came Welsh, of the Wright school, and T. O. M. Sopwith, with a passenger-carrying Wright and a passenger-carrying Bleriot. There was flying a-plenty, and more than two thousand guests of Mr. Collier had an opportunity to see both monoplanes and biplanes in flight.

Since that time another Wright biplane has been added, and now there is flying every day that the weather will permit.

Early in the Spring pontoons were placed upon the new Wright and Walter Brookins came to "Rest Hill" to instruct Mr. Collier in the gentle art of flying. At this time Mr. Collier has already made several flights alone and displays all the earmarks of a skilful and careful aviator.

A shed has been built at Seidler's Beach, on Raritan Bay, and many friends of Mr. Collier have made flights in the water machine.

The "Laredo" is bringing to an end its career as a land machine, and in a few days pontoons will be placed on that and it will be removed to Seidler's Beach. The hydro-aeroplane now located there will go to Racquette Lake, N. Y., for Mr. Collier's use.

Continued on page 15

Roland Garros Wins Grand Prix d'Aviation

High Winds Deter Many of the Entrants

DRAWINGS have been made for the Grand Prix d'Aviation, to be flown under the anspices of the Aero Club of France, on June 16th and 17th, which is a cross-country, closed-circuit race covering Angers, Cholet, Saumur and Angers. This course, which is about 97½ miles, must be covered seven times in two days, making a total distance of about 683 miles. The entrance fee charged is $400 for each machine, and the entry list is limited to thirty-five machines. As there were thirty-six entries, one of the five Deperdussin monoplanes was struck out.

The drawings, which denote the order of departure, are as follows:

1. Deperdussin monoplane.
2. Morane-Saulnier monoplane.
3. Breguet mono-biplane.
4. H. M. Farman biplane.
5. Breguet mono-biplane.
6. Bleriot monoplane.
7. Morane-Saulnier monoplane.
8. Sommer monoplane.
9. Sommer monoplane.
10. R. E. P. monoplane.
11. Morane-Saulnier monoplane.
12. Morane-Saulnier monoplane.
13. Nieuport monoplane.
14. Hanriot monoplane.
15. Paul Zens.
16. Astra biplane.
17. Boret monoplane.
18. Astra biplane.
19. Zodiac biplane.
20. Nieuport monoplane.
21. H. M. Farman biplane.
22. Deperdussin monoplane.
23. Nieuport monoplane.
24. H. M. Farman biplane.
25. Caudron biplane.
26. R. E. P. monoplane.
27. Ladougne.
28. Deperdussin monoplane.
29. Morane-Saulnier monoplane.
30. R. E. P. monoplane.
31. Bleriot monoplane.
32. Sommer monoplane.
33. Hanriot monoplane.
34. Bleriot monoplane.
35. Deperdussin monoplane.

The race is open only to French constructors and the motor in all its essentials must be made in France. The use of fuel other than petroleum essence is strictly prohibited. The canvas of the planes, the gear case and the motor will be sealed and stamped and cannot be changed during the contest.

The race is not exclusively a speed race, but will be figured in proportion to the weight carried. In case of a machine having carried only its pilot, the whole time in covering the course will be counted, but if an aeroplane carries a passenger weighing 165 pounds or more as well as a pilot, one-sixth of the time occupied in covering the circuit will be deducted. One-sixth of that reduced time will be deducted for the carrying of a second passenger of the stipulated weight, and so on for each additional passenger carried.

The time occupied in covering the three rounds of the circuit which have to be flown on the first day, and the four rounds to be flown on the second day, is to be reckoned as follows: The time of the first round on June 16th will count from the moment the aeroplane crosses the starting line at Angers until it crosses the arrival line at Angers, at the end of the first circuit. The time of each of the other circuits will be counted from the moment of re-starting, on condition that the re-start be made within thirty minutes after the arrival. One compulsory landing will have to be made each day at Cholet and Saumur. The duration of these stops is fixed at a minimum of fifteen minutes and will not be deducted from the time occupied in flying the circuit.

The prizes offered amount to a total of $20,000. This sum is divided into five prizes, as follows: First prize, $10,000; second prize, $4000; third prize, $3000; fourth prize, $2000; fifth prize, $1000.

The World's Leading Sportsman in Aviation

Continued from page 14

It would be difficult to note in detail the many flights of interest that have been made by these machines, but each one has played some part in developing the sport of flying.

Louis Stoddard, in Connecticut, purchased a Wright biplane soon after the meet at "Rest Hill," in October, and there are several more who have caught the spirit and will soon have their own aeroplane and aviator.

Water flying, more than any other kind, appeals to the sporting instinct, and in addition it offers a factor of safety not to be found in land flying.

With the impetus given the sport by R. J. Collier, it will not be surprising if at the end of the season 1912 there are a score of such men flying in all parts of the country.

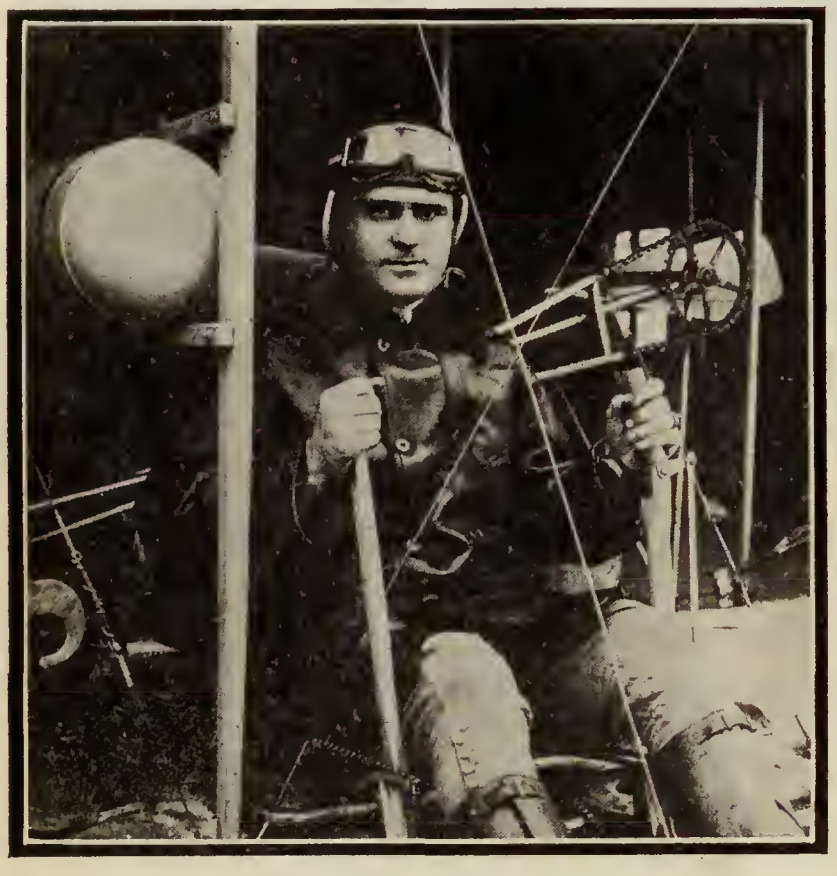
And soon one may expect to find these men joining together, forming an association to promote aviation as a sport, holding their own private meets, indulging in cross-country tours and the like.

Accident Brings Death to Two at College Park

A. L. Welsh and Lieut. Hazelhurst Have Fatal Fall

ARTHUR LEWIS WELSH, the only aviator employed by the Wright Company during 1912, and Lieutenant Leighton W. Hazelhurst, Jr., of the Signal Corps Aviation School, fell to death in the military Wright biplane, while attempting a final test of the machine on the evening of June 11, at the Army Aviation School, at College Park, Md.

The aeroplane containing these men plunged to earth from a height estimated as low as thirty feet, and the group of officers who rushed to the men when the machine fell were astounded to find that death had been instantaneous in the case of both men. Among those who witnessed the fall were Captain Charles deForrest Chandler, commanding officer of the Army Aviation School; Captain Paul Beck, Lieutenant Harry Graham, Lieutenant Roy C. Kirtland, Lieutenant Henry H. Arnold, and Lieutenant T. DeWitt Milling.



Photo, Copyright, G. V. Buck, Wash., D. C.
Lieut. Leighton W. Hazelhurst

Welsh had been at College Park for some days demonstrating the Military Wright. There were ten tests which the machine had to pass to be accepted by the Government, and Welsh had just started to make the last one when the accident occurred. The tenth test required the machine to climb 2,000 feet in 10 minutes, and in addition carry a load of 450 pounds, besides gasoline, oil and water. Welsh weighed 150 pounds, Lieut. Hazelhurst contributed 182 pounds more, and 125 pounds of shot was added to make up the required weight.

The two men climbed in the machine, and it darted away toward the southern end of the field. The machine made a turn and started back up the field at an altitude of about 175 feet; Welsh dipped it as a signal that they were about to start on the ten-minute climb.

It may be that the machine recovered from the dip to quickly for a moment later eye-witnesses report that the wings of the machine seemed to fold and the aeroplane hit the ground, plunging the men head foremost to earth. Welsh seemed to have struck on his head, while Lieut. Hazelhurst apparently landed on his neck. Welsh wore no headgear and, it is believed, if he had done so, the accident might not have resulted fatally to him. Lieut. Hazelhurst wore the regulation aviation headguard, but in his case it did no good.



Photo., Courtesy J. H. Hare
A. L. Welsh (left) with O. G. Simmons

The dip was made from a height of 175 feet according to a witness, and was made at a very steep angle. Calculation will show that their speed with the propellers working at the time Welsh attempted to shoot the machine upwards, was more than 100 miles an hour. The terrific momentum from this dip, together with the weight of the machine, apparently makes obvious what happened when the aviator attempted to pull the machine up. It is said that an eye-witness saw Welsh pull on the elevating lever to straighten it out, but that the machine did not respond.

It is stated that before bringing the machine from Dayton, Welsh asked Orville Wright about making this dip, arguing that it would give the machine impetus for the upward climb. Mr. Wright did not agree that it would, and warned Welsh against making it. In fact, it

is stated that Mr. Wright wrote Welsh a letter while he was making the tests, warning him against the very feat that caused his death.



Welsh and Hazelhurst Starting their Flight

While Mr. Wright has made no statement it is said by those in a position to know that he does not believe that the planes collapsed, but that the dip carried the machine to the ground, where it smashed and catapulted Welsh and Hazelhurst to their deaths.

As Orville Wright made the machine pass through the required tests at Dayton, with no difficulty, it would show that it was the aviator and not the machine that was at fault.



The Wreck in the field of Daisies

Arthur Lewis Welsh was about 31 years old. He became interested in flying in 1907, when the Wrights made their first demonstration at Fort Meyer. He later became a member of the Wright School and was one of the original group which included Hoxsey, Johnstone, Parmelee, Brookins, Coffyn, and La Chappelle. Since the Fall of 1911 Welsh has been the only aviator employed by the Wright Company, and upon the death of Parmelee he was considered the best of the Wright operators.

Lieutenant Leighton W. Hazelhurst was born in Georgia, July 25, 1886. He was appointed to and entered West Point in 1904, and was commissioned a second lieutenant in the Seventeenth Infantry, February 14, 1908. In March, 1911, he was assigned to the Signal Corps Aviation School, then at its winter training camp, Augusta, Georgia.

Fatality Statistics

THE causes of fatal aeroplane accidents have been reviewed by a number of writers, but it has remained for Major Roche, of the French Army, to classify them statistically. In giving out these figures Major Roche says that 25 per cent. of the accidents are due to lack of natural aptitude on the part of the pilots. Under this head he groups such defects as want of adaptability or decision.

Twenty-five per cent. are due to want of solidity in aeroplanes resulting in the breaking of wings or stays. This, Major Roche says, is the group of causes easiest to remedy in the future by the ingenuity of constructors.

Thirteen per cent. are the result of insufficient training of pilots, while thirteen per cent. more are due to error in the conception of the machine. The latter, which is the fault of the construction, generally arises from the fault of a former model retained in a corrected one.

From ten to twelve per cent. of the accidents result from atmospheric conditions, which can never be suppressed, but will in time be conquered by the further experience of pilots and improvements in aeroplanes.

Six per cent. of the fatalities are attributed by Major Roche to imprudence and lack of foresight on the part of the aviators who went up without testing their machines or landed on unknown grounds.

To Register Aerial Births

AT the final meeting of the International Congress for the elaboration of an aerial code the question of births and deaths on airships was considered.

It is reported that it was decided that in event of a birth of or a death in an airship the pilot should enter the occurrence in the log book, and at the first place at which the airship should alight the pilot should deposit a copy of the entry with the public authorities, provided the locality forms part of the same nationality as the airship; otherwise with the consul of that nationality.

If there be no consul on the spot the copy of the entry should be sent by registered letter to the proper consular authorities.

Dirigibles Carry Mail

PROGRESS abroad in dirigibles has reached a stage where they are given a regular mail route number and are commissioned to carry mails. In the future all the passenger airships of the Zeppelin Aerial Transportation Company will carry mails.

The vessels are the Schwaben, Victoria Louise and Hansa. They ply between Baden-Baden, Frankfort, Dusseldorf, Gotha and Hamburg. A fourth vessel, the Potsdam, will be added to the fleet in Autumn.

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WILBUR WRIGHT

WITH all the world of progress we, too, mourn the loss of Wilbur Wright. And yet while Death has taken him away it cannot take his fame, for that is deathless.

And now in all parts of the world, in marble and on canvas, Art will pay its tribute to his glory. Willing hands will raise up everywhere symbols that declare his name immortal. So every aeroplane that flies will tell his triumph, and as we watch them skim the skies we realize the greatness of his work.

And while the conquest of the aerial realm continues and ever after, the standards of the conquering armies will bear the name of Wilbur Wright. The builders of the empires of the air, in a high niche above them all, will place some symbol of this great pioneer.

He and his brother succeeded where others failed, and yet they did not cry their triumphs to the crowds, but were content to carry on their work in secret that their accomplishments might benefit mankind.

Untimely was his end, for he had yet full years to live to triumph o'er those powers which until he came defeated all. Be he has gone and we can only bow our heads in grief.

His last great battle he fought bravely to the end, but in that end he was conquered even as he had conquered. A great work he had done, and only in his loss does this small world begin to realize how valuable have been his services.

He lived unconscious of his greatness, and so he died unconscious of the loss occasioned by his passing.

"Aviettation"

WHILE man-powered aeroplanes or "aviettes," as they are called abroad, have not yet arrived, there is certainly cause for encouragement and reason to believe that it will be accomplished—sometime.

The other day, in the Parc de Princes in Paris, twenty machines attempted to overcome gravity and secure the prizes of $2,000 and $200, offered by the Peugeot Brothers for man-powered flight for a distance of thirty-three feet.

From nine o'clock in the morning until darkness charitably veiled their efforts the contestants attempted to fly, but none were rewarded with success.

There were one hundred and ninety-eight entries, but most of the machines were not near enough completion to test; they were simply on exhibition.

Most of the machines and contestants showed little knowledge of the requirements of flight; many of the machines consisted of two planes attached to an ordinary bicycle. Some of them lacked propellers, rudders and elevating planes.

More than twenty-five hundred persons watched the attempts at flight. The progress of the machines was hindered somewhat by a wind that blew quite strong most of the day, but the pilots were persistent, and certainly should be congratulated on their efforts.

The failure of the "aviettes" to fly is very similar to the early aeroplane contests, and many of those who witnessed these trials of man-powered aeroplanes may some day be glad to recall that they attended this first "aviette" meet.

Out of the failures of a century the aeroplane has been evolved, and out of this failure may come a wonderful success.

——

New Dirigible Altitude Record

A WORLD'S record for altitude in dirigible balloons was made on June 18th, when the scout dirigible Conte, of the French army, attained a height of 9925 feet. The former record of 9860 feet was made on May 20, 1912, by the Clement-Bayard III, also of the French army.

A Communication to the Aero Club

June 7, 1912.

Aero Club of Pennsylvania,
Bellevue-Stratford Hotel,
Philadelphia, Pa.

Gentlemen:

Your Committee, appointed to draft suitable resolutions upon the passing of Wilbur Wright, has been confronted with a task made doubly difficult by the inadequacy of any mere words or formal phrases to express the deep sense of loss which his death has brought to all who are interested in the science for which he was the pathfinder.

We feel that the passing of this pioneer indefinitely postpones the next great step of aviation. What that step will be, no man now living can say with certainty, but Wilbur Wright's marvelous instinct of flight was such that we, with many others, have long felt that from him would come, sooner or later, the discoveries which would remove the present limitations of the art and lift it above the prejudices and objections with which it is now so frequently confronted.

Wilbur Wright's methods of work were such as amply to justify the belief that he would first make flying safe as he first made it possible. He was no sensationalist. The wave of popular enthusiasm over unsafe and ill-considered aerial feats of daring left him unmoved. He not only recognized, but insisted upon the limitations of his art as so far developed, and his whole interest was not in present-day popularity, but in that unselfish and truly scientific delving for something better and higher in its usefulness that would have meant ultimate triumph and the true launching of the great art of aviation upon the career of service to mankind which we all believe the future holds in store for it.

But the inscrutable mystery that we call death has taken him before he was permitted to render this service. We look about us in vain for a man to fill his place—for a man so richly endowed with scientific exactitude. with the sixth sense of flight and with the physical expertness to prove or disprove his theories himself by actual personal demonstration.

These qualities Wilbur Wright combined in wonderful measure, and in every phase of his work he was the acknowledged master.

But it was in his scientific discoveries that he stood supreme, for he discarded all formulæ advanced before his own experiments and, by painstaking and self-sacrificing work, evolved an entirely new set of standards by which to measure the possibilities and probabilities of aerial travel. And it is this phase of his work that your Committee would like to see perpetuated. It should be carried on farther and wider, but in its future development its laborers should not be permitted to forget the man whose genius created for them a new and wonderful field of activity.

To this end we recommend that the Aero Club of Pennsylvania at once take steps looking toward the creation of a Wilbur Wright Chair of Aerodynamics. We believe that if the aero clubs of the country unite in giving financial support to such a chair, some college or some scientific institution would soon see the desirability of equipping an adequate laboratory and that thus the greatest need of aviation today would be fulfilled.

We suggest that you request the Aero Club of Ameriea to call a meeting of representatives of all its affiliated clubs looking toward this end, and that you appoint a committee to outline a practicable plan of procedure to be submitted to such a meeting.

And we ask further that you accept this communication in lieu of formal and conventional expressions of regret, for such expressions could not voice the deep sorrow that we and all of the members of this club feel at the loss we have sustained.

Very truly yours,

COMMITTEE ON MEMORIAL
TO WILBUR WRIGHT.
Henry M. Neely, Chairman.

The Letter Box

Newton Highlands, Mass., June 10, 1912.

Editor of Fly.

Dear Sir:—I have just read "The Forces That Control the Flight of the Boomerang," in the June issue of Fly. I must say that I never looked upon a boomerang as a flying machine before, but it seems to me that Mr. Spratt, the writer of this article, hits the nail on the head when he applies the principles of aerodynamic flight to the boomerang. I believe that the efficiency of this peculiar instrument could be improved by adapting some of the principles of aerodynamics to its design.

Very truly yours,

Earle L Ovington.

G. A. Spratt to Publish New Theory

Believing that he has made a discovery that will benefit and tend toward safety in aviation, George A. Spratt, Jr., will publish simultaneously in Fly and *Aeronautics*, beginning with the August issues, a series of articles introducing a new theory of the center of pressure. Mr. Spratt claims that he can prove and demonstrate that such a point does exist and he is willing to give his knowledge to the world if it will assist in decreasing the fatalities that have so lately robbed America of its most expert flyers.

Mr. Spratt has been a student of air pressures for many years. He was a close friend of Octave Chanute, and was at Kitty Hawk with Mr. Chanute and the Wright brothers.

Since those early days Mr. Spratt has continued his work in seclusion among the Pennsylvania hills. He has studied pressures almost continuously, and when the full extent of his work is known it will be seen that his scientific investigations are of a high order.

That this knowledge may be disseminated as widely as possible, Mr. Spratt has made a special arrangement with Fly and *Aeronautics*, whereby the articles are to be published by them simultaneously.

Questions and Answers.

OWING to the unusual amount of matter for publication in this issue of "Fly," it has been found necessary to omit the "Question and Answers" Department for this month.

A Simple Way to Turn an Aeroplane in Flight

A Novel Method of Using Ailerons

Bg Albert Adams Merrill,
Lecturer on Aerodynamics at the Massachusetts Institute of Technology

THE right way to do a thing is the simple way. This old truth is proved again in the case of the novel system of lateral control of aeroplanes that is described in this article.

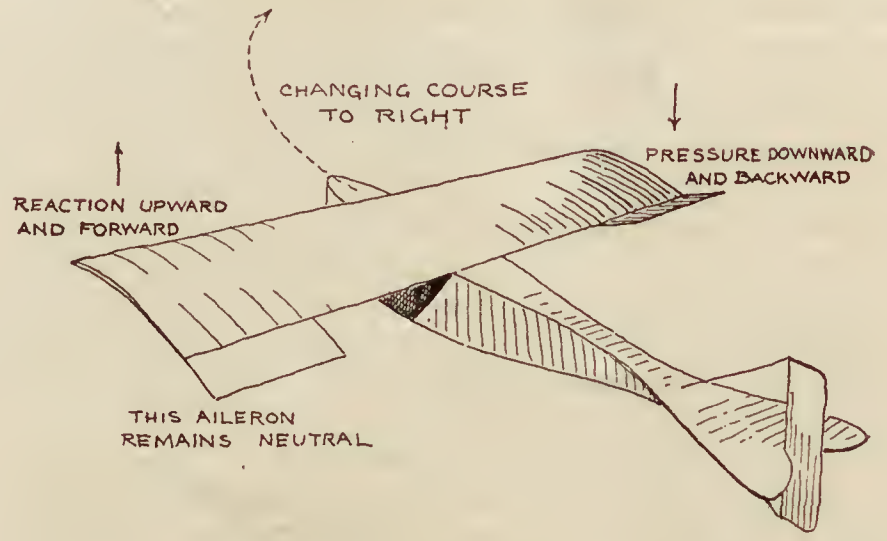
To turn an aeroplane in flight, some resistance must be offered on one side of the path of flight, retarding that side and letting the other side swing around, so that the direction of the machine is changed. But, besides this, it is necessary to "bank" the machine at the same time, or else it will skid, as an automobile does on a perfectly level road. In the accompanying drawing an aeroplane is shown turning to the right. This is done simply by raising the right aileron, letting the other rest parallel to the surrounding air stream. As anyone can see, this simple means does the two things required; the downward pressure on the aileron lowers the right wing and raises the left wing, and the backward pressure holds the right wing back, so that the machine turns to the right. This method is so simple and its efficiency so obvious, that it is hard to understand why it was not employed from the first. The evolution of an invention seems to be from the complex to the simple, and this method of control is but another example of this fact.

Because this method is likely to come into use, it is of interest to observe wherein it differs from the other methods of control now employed.

First let us notice that, as the aileron is lifted, the immediate effect produced is the banking of the machine, and any observant person knows that on railways one can tell when a curve is just ahead by the tipping of the car, which occurs before the curve is reached. A slight elevation of the aileron produces more downward than backward pressure, and starts the banking before the machine begins to turn. As the aileron rises, the backward pressure or drift becomes greater and the machine begins to turn. Obviously, there is some slope of the aileron where the two forces of downward and backward pressure are combined in exactly the right proportion to secure the desired result. The course of the machine being changed, the aileron is released and drops to its normal position of neutrality, when the machine automatically returns to its attitude of straight-away flight.

Besides being simpler, this method of control surpasses all others in its economy of the kinetic energy or momentum of the machine. This is a matter of vital importance, because, if the momentum of a flying machine drops below a certain point, control of the machine is lost. This is called "stalling," and many accidents are traceable to this cause. Hence the great problem in turning is to expend the least possible amount of energy. In every type of control now in use, a great deal of energy is wasted. The use of a vertical rudder is a sign of such waste; no soaring bird has a vertical rudder.

To secure a banking position for turning to the right, the left wing must be raised, and this is usually done by warping, or by pulling down an aileron. This introduces, on the left wing, a drift which causes the machine to turn in a direction the opposite to that desired. Hence the rudder has to be used; first to offset this turning, and then to turn the machine in the direction it should go. The warping turns the machine in the wrong direction and the rudder has to work against the warping. This condition is at once wasteful and dangerous, and it is this phenomenon which proves the fallacy of the positive angle.



Kinetic energy or momentum is the very life-blood of a flying machine. To waste it is suicidal. Yet, whenever so-called offset resistances are introduced, such waste occurs. If a surface is flying at its most efficient angle, any change in that angle means a decrease in its efficiency. As this most efficient angle should be used always in flight, the warping of both wings, as in the Wright machine, means a twofold loss of energy, and when the rudder is called into play a third loss of energy occurs. This is why the Wright system is less than one-half as efficient as the system I have described. Even when but one aileron at a time is used, *but with the pressure on its under side,* as in the Farman, the lift required for banking is obtained at the expense of dangerous drift on the wrong side, which has to be offset by more drift, produced by the rudder. The more closely one looks into the matter, the more evident it becomes that there is only one point at which a single force can be applied,

Concluued, on page 23

Committee Fails to Put Dubonnet on French Team

Action Causes Astonishment in Aero Club Circles

THE premature publication of the names of the three members of the French team to compete in the Coupe Internationale des Aeronautes has caused a furore in the Aero Club of France, brought censure from the managing committee on the sports committee and caused that thorough sportsman and famous aeronaut, Emile Dubonnet, holder of the world's record for distance in a spherical balloon, to resign from the club. And the mad rush for news did it all, according to a member of the Aero Club. The names given out at that time were merely suggested, now say the members of the sports committee. And now Emile Dubonnet has withdrawn his resignation.

It happened thus: A Paris paper stated that instead of the unusual elimination race to determine the contestants (which would have prevented the unfortunate misunderstanding) the three pilots had been appointed, and were Alfred Leblanc, George Blanchet and Maurice Bienaime.

And quite naturally, all Paris rose in its anger, for was not Emile Dubonnet, holder of the world's record for distance, entitled to a place on the team? And quite naturally Emile Dubonnet sent in his resignation. And just at this point the executive committee of the club began to realize that explanations were due.

It seems that five men, Dubonnet, Leblanc, Bienaime, Blanchet and Perron, sent in their names for the French team. The sports committee wanted to organize an eliminatory race, but the aeronauts were opposed to this. Then came a secret vote, and then the result of the secret vote was published and Dubonnet's name was not on the ticket.

But read what the Paris *Excelsior* says:

"The Coupe Internationale des Aeronautes will be contested this year at Stuttgart. The Aero Club de France has appointed the three pilots to represent France. They are M. Alfred Leblanc, M. Georges Blanchet and M. Maurice Bienaime. The choice seems excellent as regards M. Alfred Leblanc, holder of the French distance record, and M. Georges Blanchet, the winner of many of the Aero Club's Grands Prix.

"But the forgetting of M. Emile Dubonnet, holder of the world's distance record by his recent voyage, causes stupefaction. Why has he been left out? It is difficult to reply. Is not M. Emile Dubonnet one of our most brilliant sportsmen? Do not his performances designate him as France's most remarkable aeronaut? Does not the fact that he has beaten such a record as the world's distance record demand his nomination as France's chief representative?

"The decision of the Aero Club de France will astonish everybody and will provoke general hilarity, while at the same time giving foreigners, who will be happy to see so dangerous a competitor eliminated, the impression that justice is often disregarded in France.

"M. Emile Dubonnet, indeed, has resigned the membership of the Aero Club."

"The incident," says M. Jacques Mortane, "arises from a clumsy vote of the sporting commission, which is deplored by the managing committee of the club. MM. Alfred Leblanc, Georges Blanchet and Maurice Bienaime are all aeronauts of great worth, well fitted to represent the Aero Club. But M. Emile Dubonnet has prior claims to them all. The opinion of the managing committee of the club may be expressed as follows: A club which has the honor of possessing among its members the holder of the world's distance record ought to appoint the record holder *ispo facto* whenever a distance race is to be contested.

"The sporting commission thus ought to have appointed M. Emile Dubonnet without submitting his name to a vote. Despite the censure of the managing committee the sporting commission has not resigned."

M. Dubonnet, who holds the world's distance record in ballooning, was considered to have an indisputable claim to the honor of representing France in the contest for the international trophy, and as a sequel to the incident he sent in his resignation as a member of the Aero Club. He has since, however, withdrawn his resignation, but declared that in any case he would not accept nomination as one of the French team. The Aero Club subsequently announced that the publication of the names of the team in the press was premature and unofficial.

On May 31 the sports committee of the Aero Club of France met to discuss the situation, and at a meeting lasting more than two hours the affair was threshed over thoroughly and information was given out that a team had been selected to represent France, but that the list will have to be submitted to the board of directors of the Aero Club for approval and ratification.

One of the members of the commission said: "All the members are sworn to secrecy this time. It was the premature publication of a suggested list of names that caused all the trouble a week or so ago, and we are determined that this shall not be repeated.

It is understood, however, that in deference to his wishes M. Emile Dubonnet is not on the list presented.

But up to the present time no one has offered any information as to why M. Dubonnet's name was left off the original list.

Philip Parmelee, Master Aviator, Falls to Death

Fatal Accident Occurs in New Tractor Biplane

On the day that Wilbur Wright was taken to his last resting place, Philip O. Parmelee, famous pupil and aviator of the Wright school, fell to his death in an orchard a few miles out of North Yakima, Washington.

Of the coterie of famous Wright fliers that have met their death in an aeroplane, it is doubtful if there was one more beloved by Wilbur Wright than Parmelee. In the Spring of 1911 in a letter recommending Parmelee as an aviator and as a man. Wilbur Wright described him as "the most lovable man I have ever met."

It is quite probable that the exact cause of Parmelee's death will never be known. Some believe that a vital wire broke at a crucial moment but it is all conjecture. One eye-witness reports that the tail of the machine rose perpendicularly in the air and then the biplane dived straight to earth. Another report is that the machine was seen to waver and then stagger through the air and plunge to earth.

Parmelee had been flying in exhibition with J. C. (Dick) Turpin. The wind was blowing fifteen to twenty miles an hour and it was rolling in gusts. Late in the afternoon he rose in the air and flew from the Yakima race-track over the Yakima river to the West. He rose to a height of four hundred feet and as he flew it was noticed that Parmelee was continually working to keep the machine on a level keel. Three minutes after leaving the ground the machine was seen to plunge earthward.

When friends arrived, Parmelee was found dead beside the wreckage. His skull was fractured and it is believed that death was instantaneous.

Parmelee was loved by all who knew him and made friends wherever he went. He never drank or smoked and was one of the most skilful aviators that has ever flown the Wright machine. He was considered a conservative flier and had made a reputation as the "safest" aviator on the Western Coast.

Parmelee was by far the most profitable aviator employed by the Wright company and during the year 1911 it is estimated that he earned almost $200,000 for them.

Philip O. Parmelee was born twenty-five years ago at St. John's, Michigan. His first business venture was working with his father in the manufacture of gasoline engines. Later he became an automobile tester and was connected with the Buick Automobile Company until his entry in the aviation world.

In 1910 Parmelee went to Dayton, Ohio, to learn to fly an aeroplane and there under the careful tutelage of Orville Wright and Al Welsh he took up instruction. In the Fall of 1910 Parmelee flew in exhibitions in the South returning North for the International Meet at Belmont Park. There his companions, Brookins, Hoxsey and Johnstone, overshadowed his work.



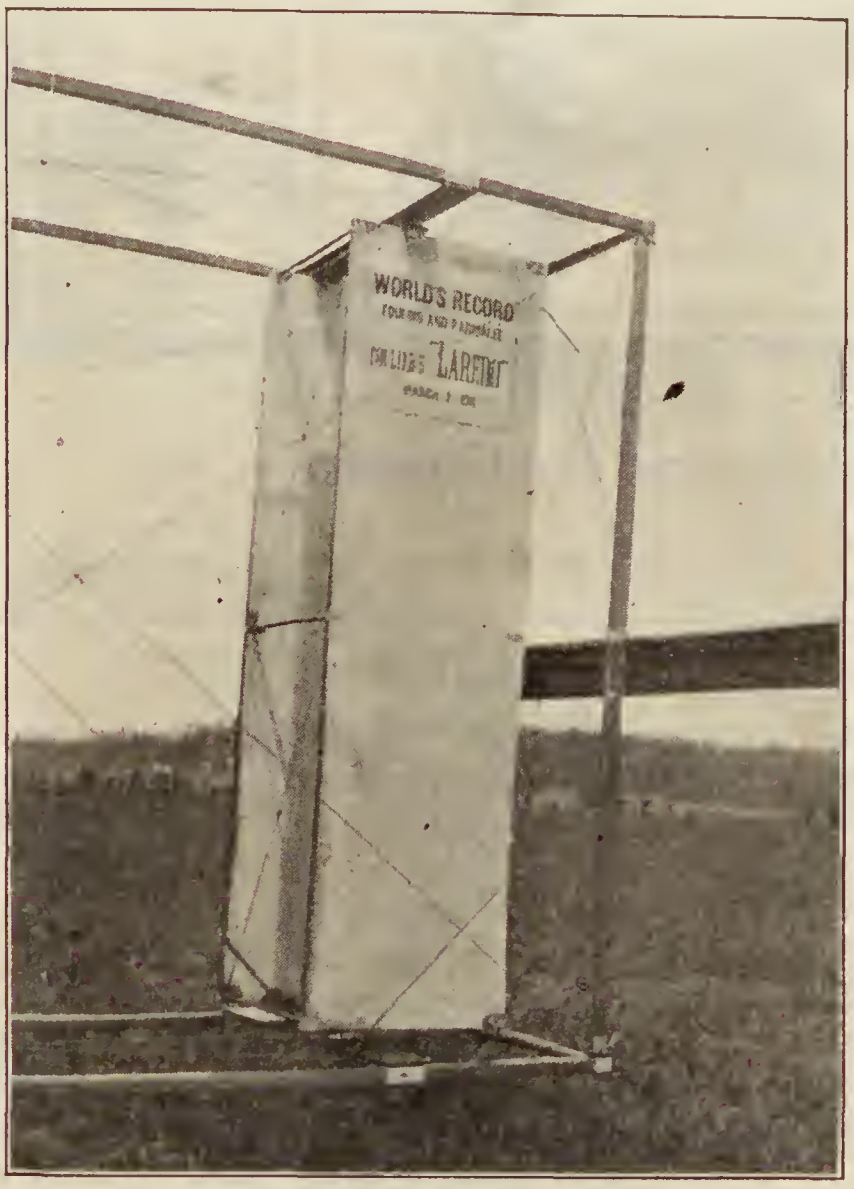
Photo., Courtesy, James H. Hare
Philip O. Parmelee

On November 6, 1910, Parmelee carried the first express package by aeroplane, flying from Dayton to Columbus, Ohio. He also made a record for speed by covering the distance of 65 miles in 66 minutes. It was the first convincing proof that an aeroplane could be put to practical use and the newspapers all over the country devoted editorial comment to the accomplishment of this flight.

Parmelee made his next appearance at the Los Angeles Meet and later at San Francisco, where, on January 22, 1911, he set an American mark for duration, remaining in the air 3 hours, 39 minutes and 49 1/5 seconds.

In March, 1911, Parmelee made himself famous with his flights along the Mexican Border. At the time of the mobilization of the troops there was no Wright machine for Parmelee to fly, but Robert J. Collier was quick to offer the War Department the use of his Wright biplane which was immediately accepted and the machine put in commission.

On March 3, Parmelee, with Lieut. Foulois as a passenger, set out from Laredo and flew to the army post at Eagle Pass, a distance of 116 miles in 127 minutes. The biplane carried twenty-five gallons of gasoline, a compass, a barograph and field glasses.



The vertical rudder of the "Laredo"

Each man had an army revolver, forty rounds of ammunition, two days' rations and a quantity of chocolate bonbons in case of emergency.

At that time the flight constituted a world's record and the City of Laredo, in appreciation of the success of the trip, gave a dinner in honor of the two aviators. The city council also had two posters printed on linen, testifying to the flight, and in addition christened the biplane, "Collier's Laredo." One of the posters has a place in the city hall, at Laredo, while the other is firmly sewed to the vertical rudder of the Wright biplane which Oliver G. Simmons has been flying all winter at R. J. Collier's country place at Wickatunk, N. J. The "Laredo" will soon become a hydro-aeroplane and will be taken this summer by Mr. Collier to his home in the Adirondacks, at Racquette Lake, N. Y.

On August 18, 1911, at Chicago, Parmelee reached an altitude of 10,837 feet, breaking the then existing world's record, but two days later, on August 20, Lincoln Beachey robbed him of his laurels by climbing into the sky to a height of 11,642 feet.

At Los Angeles, during the 1912 meet, Parmelee developed a trick of making figure eights at a high rate of speed. Since that time he has been flying in the West with Turpin.

The machine used by Parmelee at the time of his death was one designed and built by Turpin and himself.

Hirth Wins Big Race

HOLMUTH HIRTH, a well-known automobile racing driver, won the Berlin-Vienna aeroplane race on June 9-10, which covered a distance of 330 miles. The flying time of Hirth was six hours and thirty-five minutes. Lieutenant Schoeller, of the German Army, accompanied Hirth as a passenger.

The race was flown under the auspices of the Imperial Aviation Society of Berlin and the Austrian Aero Club of Vienna. The stages of the race were Berlin to Breslau and Breslau to Vienna. Three Austrian military officers who started from Berlin were forced to land between Breslau and Vienna. Lieutenant Miller was the best performer in the first stage of the contest, flying the distance between Berlin and Breslau, about 200 miles, in two hours and fifty-eight minutes.

Hirth in the course of his flight flew over the Altvator Mountain range in Moravia. This range reaches an altitude of about 4900 feet.

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A Simple Way to Turn An Aeroplane in Flight

Continued from page 20

which will both bank and turn the machine, and that point is the top surface of an aileron placed substantially as shown in the drawing accompanying this article. All other methods of control are relatively wasteful and absolutely dangerous.

It is interesting to note further, that, by this method, a low wing can be raised more quickly and effectively than by any other method. The mass of the machine being practically concentrated on the fore-and-aft axis, supplies a fulcrum upon which the wings operate as a lever of the first class in respect to vertical forces. At the same time, the forward movement of this central mass acts as the power in a lever of the third class, for fore-and-aft forces, so that the unresisting wing tip is moved forward more rapidly than before, hence it lifts more than it did. This happens without any change in its angle of incidence, so that it always flys at its most efficient angle. This condition of efficiency cannot be equaled by any warping system. A downward and backward force on one tip will raise the other tip. This phenomenon constitutes what I call the paradox of the negative angle.

All of these statements can be proved mathematically, and I have published the mathematics of the negative angle. The general principle of this system is so evident to any open mind, once it is understood, that it cannot be long before many are demonstrating and using it.



A DEPARTMENT FOR ALL INTERESTED IN MODELS AND MODEL FLYING

Conducted by the Junior Editor **Model Editor, Philip T. McCutchen**

The Wright Hydro Model

By Philip T. McCutchen

THE hydro-aeroplane is the solution of the ever-present danger problem in aviation, and as this highly interesting sport is yet in its infancy the consequent development and perfection of this type of flyer lies ahead of us.

Experiments with hydro models lay the foundation for a thorough knowledge of the subject. Model makers have frequently stumbled upon valuable secrets that have proved useful to them in building and flying their full-sized aeroplanes.

The model described in this issue is neither a speed machine nor a long distance flyer, but it proves its worth by leaving the water with ease and landing smoothly at the completion of the flight.

It is hardly necessary to give a lengthy description of the construction, as the readers of FLY are already familiar with them. The main planes measure 3 feet by 6 inches and are 6 inches apart. They are made in the usual manner, with strip bamboo and cloth. The front plane measures 20 inches by 4 inches, and is loosely joined to the front tips of the pontoons to allow free adjustment. The rear rudder is 6 inches high and 3½ inches wide. Two bamboo outriggers 12 inches long support it. The method of rigidly trussing it is clearly illustrated in the drawing.

The pontoons measure 20 x 3 inches and are 2½ inches deep. A detailed description of the construction of pontoons was given in the last month's issue of FLY.

The motive power consists of two 10-inch propellers, driven with rubber strands. The motor bases are placed parallel with the main planes, the power is transmitted to the propellers by means of a chain and sprocket drive. Two 8-tooth sprockets are used for each propeller. Drawings *A* and *B* give an idea of how this drive is applied.

A model of this type and size should not be flown on a windy day, as it does not develop sufficient speed to buck a stiff breeze. When starting the model it is best to tack obliquely into the wind, thus allowing the machine to adjust its balance.

The Model Hydro Flights

By the Junior Editor

NOW is the time for all the members of the National Junior Aero Club to start work in earnest. The prizes for model hydro-aeroplane flights can be won only between July 1st and July 31st, midnight. Read the rules of the competition carefully. They were published in the June issue of "Fly." Failure on the part of any entrant to give strict attention to all the requirements may be considered sufficient cause to reject that entry.

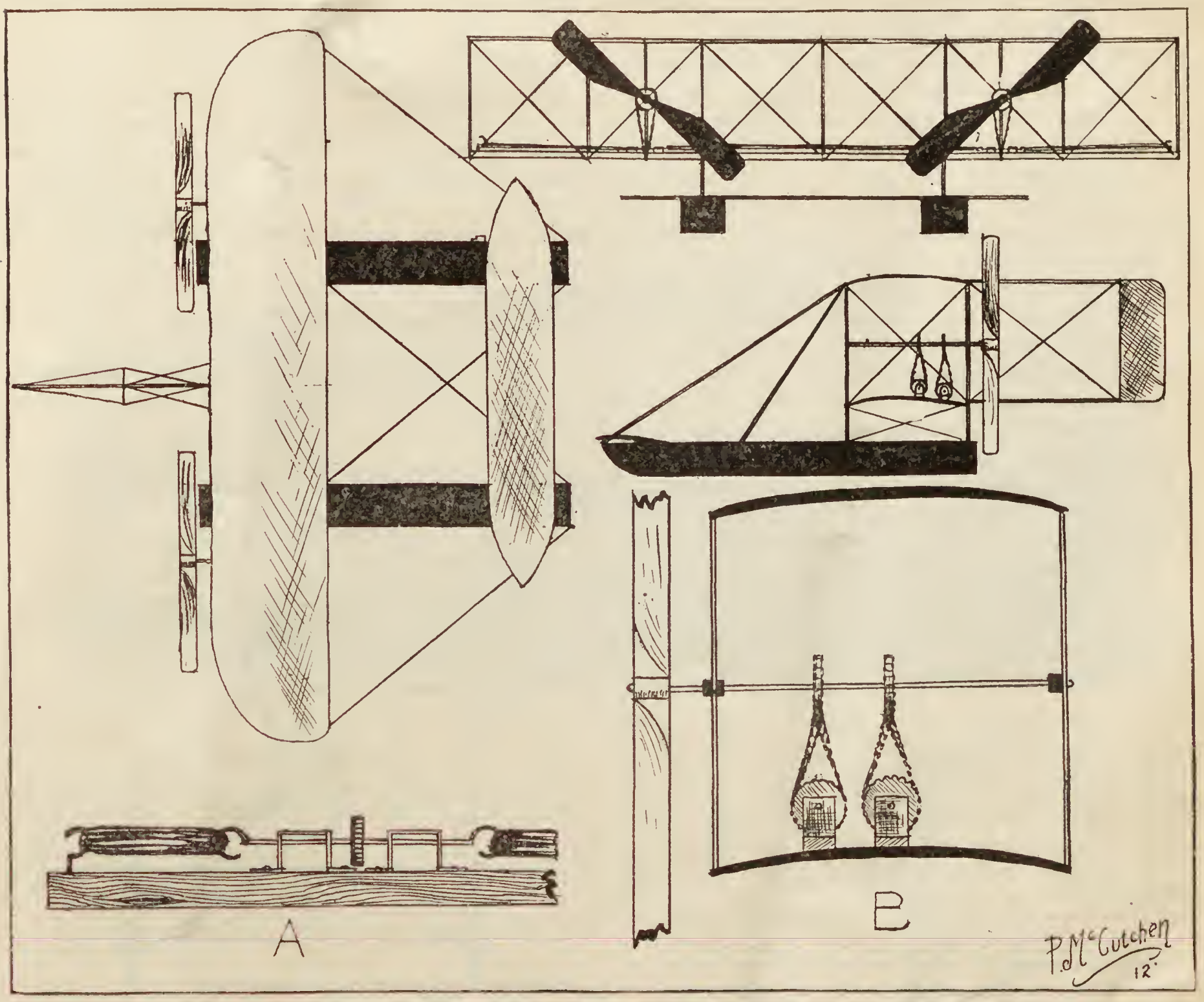
More than a score of the members have signified their intention of trying to capture one of these prizes. Remember, there are five prizes. Do not fail to try and win one of them.

The winners will be announced in the September issue of "Fly." At that time there will be another contest in progress. Lack of space has prevented a notice of the next contest in this issue.

A New American Record

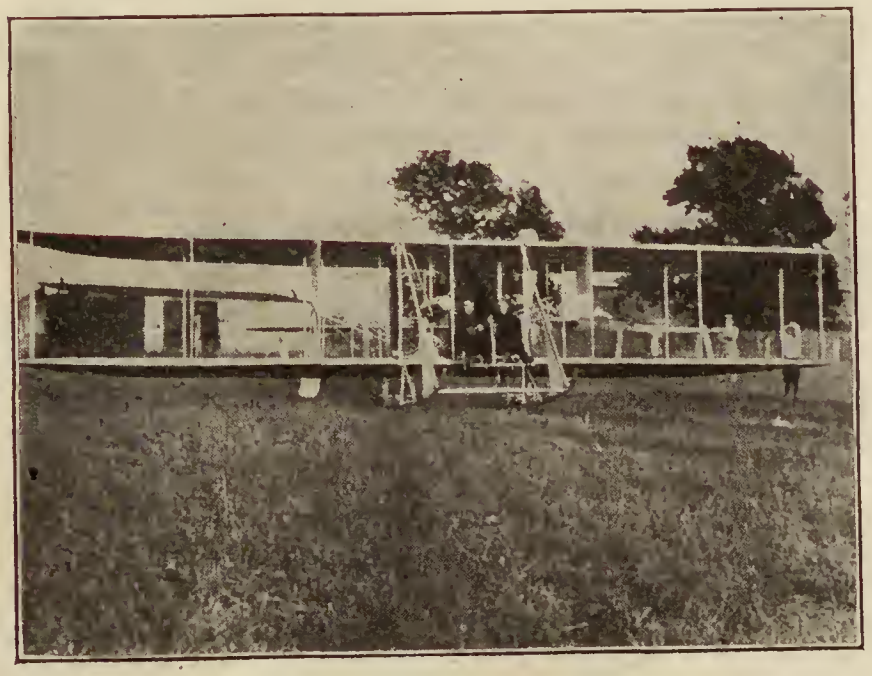
ON May 24th, flying at Nassau Boulevard, Long Island, Paul Peck, in a Columbia biplane, equipped with a Gyro motor, made a new American record for time in the air, remaining in continuous flight 4 hours, 23 minutes and 15 seconds. Had not a severe thunderstorm come up, Peck would probably have flown much longer. By this flight he becomes holder of the American duration record. Howard Gill was the former holder, with a record of 4 hours, 16 minutes and 35 seconds.

O. G. Simmons made several flights at Wickatunk, N. J., on Decoration Day. The employees of the Collier establishment in New York held an outing at R. J. Collier's country place at "Rest Hill." In the afternoon Simmons was in flight more than twenty minutes with James H. Hare, the veteran photographer, as a passenger. During the trip Hare made a number of photographs of the baseball game in progress on the Polo field.



Bergdoll Flies Over Philadelphia

CARRYING Dr. T. E. Eldridge, a well-known balloonist, as a passenger, Grover C. Bergdoll, operating a Wright biplane, flew on June 1st, from his flying field at Manoa, Pa., to Philadelphia, circled the City Hall Tower three times, and returned to his aviation grounds. The distance as the crow flies is about ten miles. The trip was accomplished in about thirty-six minutes. Bergdoll maintained an altitude of 2500 feet throughout the trip.



Grover Bergdoll and passenger

Bergdoll is a graduate of the Wright School, having been instructed in the record time of four days. The late A. L. Welsh taught him at Dayton. Upon Bergdoll's return home, he immediately ordered a Model B Wright biplane and is flying it every day that the weather is good.

The young aviator is but nineteen years old, wealthy in his own right, and is flying for the sport of the game. In almost all his flights Bergdoll carries a passenger. He is a member of the Aero Club of Pennsylvania and has carried many of the club on his flights.

One of the most daring flights of the month was made by Earl Sandt, the first man to fly across Lake Erie. On Saturday, June 15th, Sandt flew over the city of Pittsburgh for 21 minutes. The wind blew in dangerous gusts and the flying was treacherous. It was the first time that such a flight had been over the city.

The James Means Control

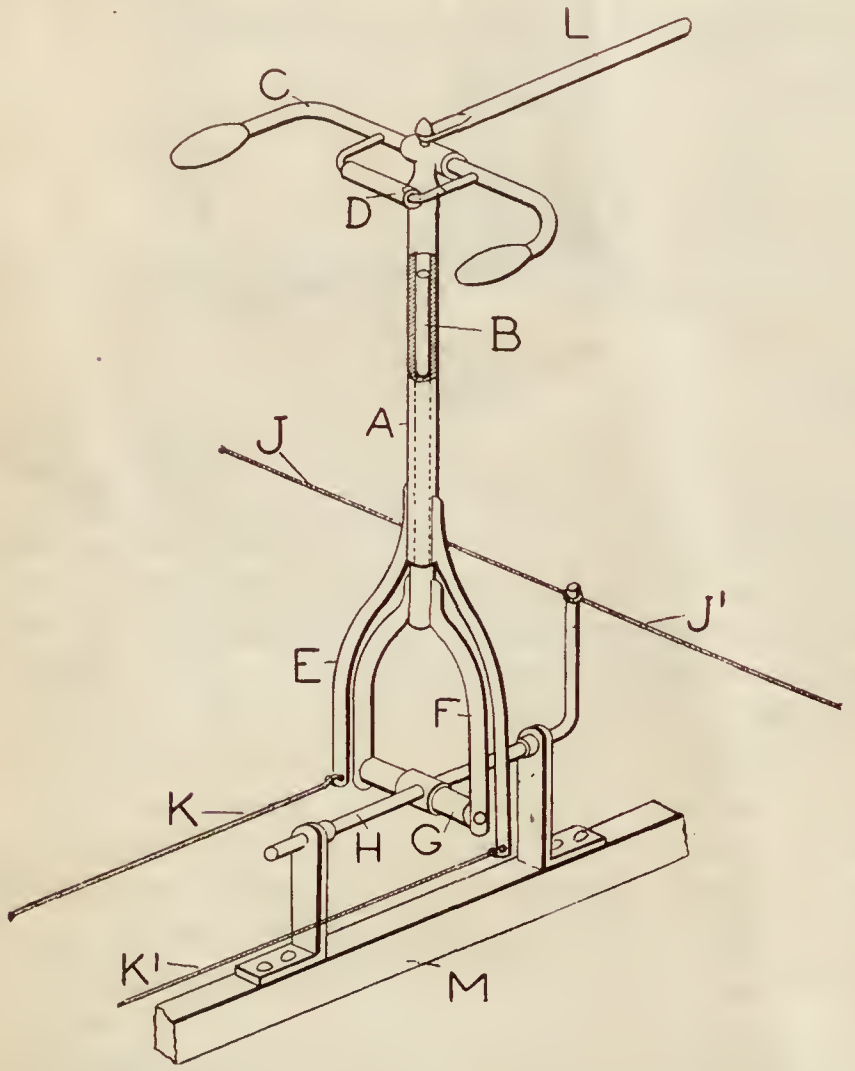
A MEANS of control for aeroplanes, based upon the principle of mental automatism, has been invented and patented by James Means, of Boston. The inventor believes that if an aviator who has previously learned to ride a bicycle or motorcycle can have a control on his aeroplane that corresponds to the action of bicycle handle bars he will have nothing to unlearn and that it will be of great assistance in maintaining lateral and longitudinal balance.

It will be seen in the diagram of the control that the balancing actions of the aviator are natural.

In looking over the control it will be observed that the handle bar is capable of three kinds of movements.

Both hands, forward or aft; (2) both hands left or right, and also (3) the ordinary steering movement of the bicycle handle bars which moves the vertical rudder. These movements can be made similtaneously or independently.

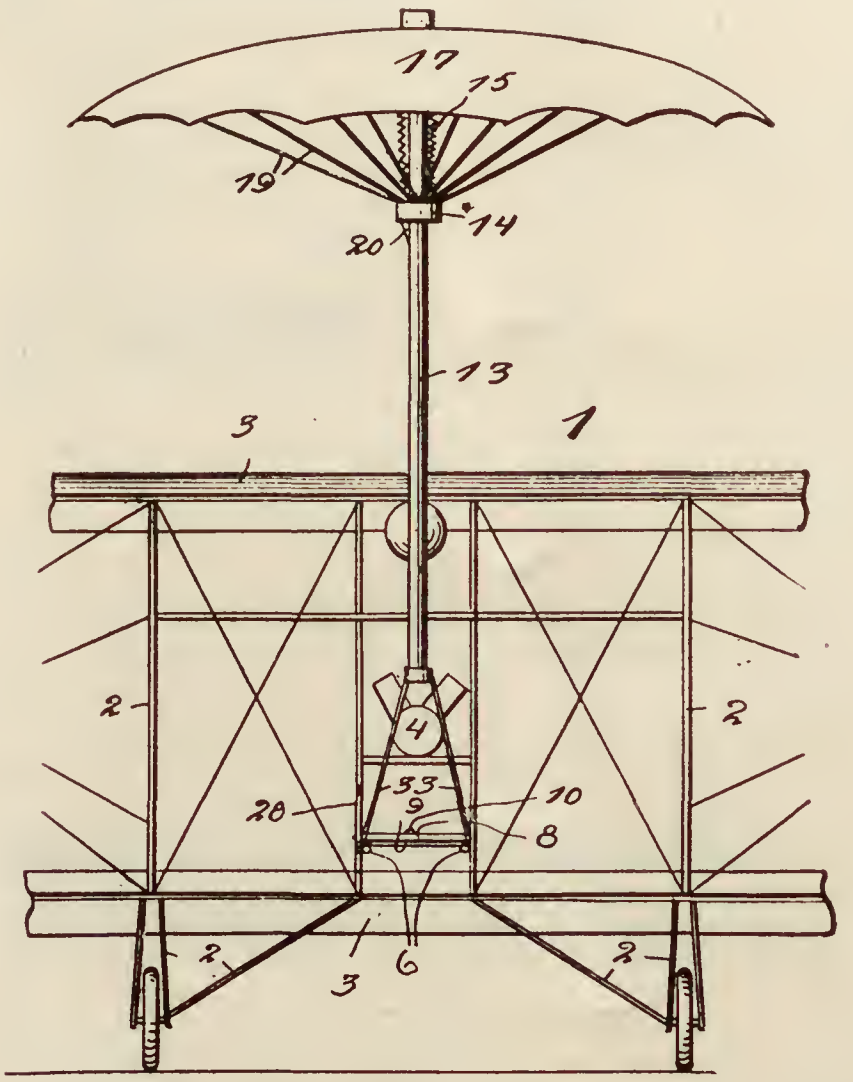
To illustrate the former: Both hands aft elevates bow; both hands forward depresses bow; both hands to the right elevates port side; both hands to the left elevates the starboard side.



C, Handle bar, rigidly attached to tube **A** which has a rotary movement about rod **B**. **E**, Fork, rigidly attached to tube **A** and having connected, at its terminals, the cables **KK'** which actuate the vertical rudder. **F**, Fork, rigidly attached to rod **B** and having free rocking movement upon its terminal pivots. **H**, Rock-shaft actuated by **FG** and actuating the ailerons by the cables **JJ'**. **L**, Rod actuating elevator. **D**, Grip for single hand.

The Stolp Parachute Device

NEWS from France that an inventor has perfected a parachute to be attached to the seats of monoplanes, capable of being released in time of accident permitting the aviator to float safely to earth, brings attention to an invention of a similar nature in this country. Louis Stolp of Washington, D. C., has applied for a patent to cover a parachute attachment attached to the seat of biplane.



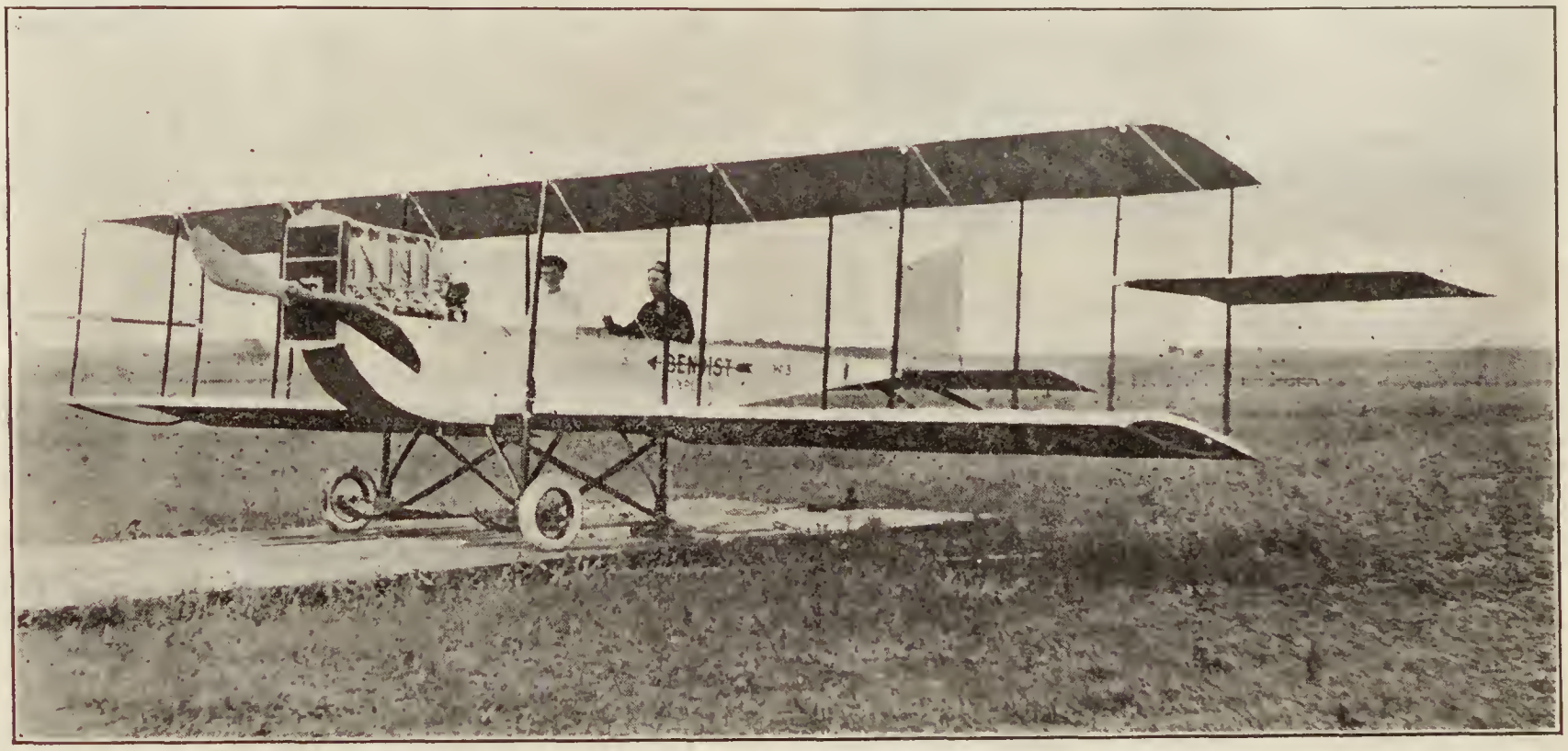
Automatic means are provided to open the parachute, and common means including a hand lever, are provided to simultaneously disengage the latch from the frame-work of the machine and to release the automatic means for opening the parachute.

The automatic means for opening the parachute include retractile coil springs, attached to the upper end of the staff of the parachute and secured at their lower ends to a movable ring mounted upon the staff. The opening ribs of the parachute are attached to this ring so that the cover of the parachute is opened when the ring moves upward along the staff.

Catches are provided to normally hold the ring in its lowermost position. These catches are moved to release the ring by a cable connected with them and extending downwardly to have connection with the hand lever or common controlling means.

In times of danger the operator catches hold of the hand lever and by swinging the same, the seat is quickly disengaged from the frame-work of the flying machine and the parachute automatically opens by springs disposed therein, whereby the operator is lowered to the ground.

TRADE TOPICS



The New Benoist Tractor Biplane

Roberts Catalogue

Without question the finest work of the printer's art ever disseminated in aviation circles has lately been put out by the Roberts Motor Company. It is illustrated from cover to cover with fine photographs of Roberts-engined aeroplanes in flight, together with cuts of the different engine types and their essential features.

Mr. Roberts is to be congratulated on the excellence and beauty of the catalogue.

The Benoist Tractor

The new Benoist tractor machine, known as the type twelve, is the result of the last several months' application to the refinement of details, and close attention to accomplishing many small improvements over the preceding machine.

Like the older machine it uses steel springs instead of rubber shock absorbers. These have not been changed at all, as they have been found to be very successful; in fact, successful enough that the wide-awake European manufacturers have copied these with certain variations several times in the last few months. The six-cylinder Roberts motor is set clear out in front, and with the radiator mounted between the tractor and the engine, makes a very compact assemblage. The ailerons are very large, each one having twenty square feet of surface. The tail is non-lifting, and like the rudder and ailerons, flex for control.

The running gear construction lends itself quite readily to the attaching of pontoons, and both pontoons and wheels can be furnished with the planes so that it can be used interchangeably as a hydro or land plane.

This machine is two-place, and will carry enough gasoline for a two hours' flight with both seats occupied. This is probably the first American machine in which comfort has been considered in the seating of passengers, as both seats are wide and roomy, and the lower part of the body is protected from the wind because of the deep boxes.

With this, however, there is but little head-resistance, as the radiator, engine, passenger and aviator are all mounted tandem in a stream line. The standard machine is equipped with twenty by four inch Clincher tires, and covered all over with Goodyear No. 10; the standard gasoline tank holds fifteen gallons, and is mounted inside of the engine frame, carrying an air pressure of two pounds. This assemblage eliminates a great amount of the danger from fires as a result of a smash up, in which the gasoline tank is hung above the engine, thereby breaking the gasoline lead and setting fire to the wreckage.

Goodyear Cloth on Hydro

The United States type of hydro-aeroplane is attracting an immense amount of attention in Europe. Germany is the latest country to adopt water flying. A few weeks ago Mr. Kober, directing engineer of the Zeppelin Company of Friedrichshafen, builders of the Zeppelin dirigible balloons used by the German army, placed an order with the Curtiss Aeroplane Company of New York and Hammondsport, New York, for one of its hydro-aeroplanes equipped with Goodyear rubberized fabric manufactured by the Goodyear Tire and Rubber Company, Akron, Ohio.

Mr. Kober attended the races at Monoca not long ago and flew as a passenger in the Curtiss machine, driven by Louis Paulhan. He was much impressed with the speed and quick manoeuvring qualities of the American machine. The order placed here calls for a passenger-carrying hydro-plane of the latest type, like that displayed at the Aeronautic Show in New York, which was sold to the Russian Government.

E. J. Willis Co.

E. J. Willis Company is doing a fine business in aeroplane accessories and motors. Everything is up-to-date and at the right price. You will always find them busy, but never too busy to be prompt in filling orders.

Propeller "Don'ts"

By George S. Gassner

Don't build your machine so that you can swing only a six feet propeller. You will probably want a larger one before you are through "cutting grass."

Don't think that you can make up in pitch what you lack in length. You may get a big breeze behind, but you can't fly with a fan.

Don't imagine for a moment that any propeller will make up for lack of power in the motor. A properly designed propeller will absorb the full horsepower, but can do no more.

Don't judge the efficiency of your propeller by its thrust on the ground. You can't tell the speed of a race horse when he is tied to a post.

Don't blame the propeller if the motor does not furnish the power. You can't win the Vanderbilt race with a two-cylinder runabout.

Don't order a special propeller and expect to get it by return mail. Good varnish takes time to dry and harden, and there is no way of hastening it.

Don't start with a cheap propeller. The novice needs all the helps he can get in learning to fly. The experienced aviator may take his chances with any old "paddle."

Don't think that because a man is a good carpenter that he can make a good propeller. There is still something in the "know how."

Don't "cuss" the propeller maker because your machine does not fly at the first trial. Perhaps you have not balanced your machine as accurately as he balanced his propeller.

Don't think that propeller makers are robbers. A rich propeller maker would be exhibited by Barnum as a curiosity.

Many Maximotors Sold

The aeroplane of the Detroit company of the Michigan Naval Reserves is now equipped with the Model 1 Maximotor at the Flying Grounds on Fox Creek. There are now from one to eight Maximotors in each of the twenty-seven States of the Union, besides others in a number of foreign countries.

The National Vulcanizing Company has just received its military Model G Maximotor for long cross-country flying.

The military Maximotors are made in three models—G, a 4 cyl. of 7 h. p.; H, a 6 cyl. of 105 h. p., and J, an 8 cyl of 140 h. p. These were intended chiefly for army use on government aeroplanes. They are equipped with clutch, flywheel, muffler and self-starter.

However, the Model G on exhibition at the recent New York Show attracted a great deal of attention from exhibition aviators, who at once saw the exceptional features of the engine for cross-country and inter-city work.

The demand has led Maximotor makers to put these motors on the market without the muffler, clutch, etc., especially for exhibition flying.

Maximotors have been recently sold to the Kuhnert Aerial Construction Company, Hackensack, N. J.

Graham & Gandy Auto Manufacturing Co. of San Francisco, Cal.

Allen Perkins, Missoula, Mont.

G. P. Blackiston, Canton, Ohio, through the Standard Aviation Company, Chicago, Ill.

Snyder Aeroplane Company, Osborn, Ohio.

F. Beckwith, Mineola, N. Y.

Kemp to Sell "Grey Eagles"

The well-known Aeroplane factory and school of Aviation, known as The R. O. Ruble, Jr., & Co., of Louisville, Ky., have recently made an assignment, as owing to the conditions of their business and a shortage of working capital, they were unable to continue operation.

The Kemp Machine Works, of Muncie, Ind., will now take up the handling of the Grey Eagle Motors direct from their factory. The Ruble Co. having been their exclusive agents for the past two years. The Kemp Co. reports business rushing at the present time; several of their 6-cylinder motors have been sold recently.

The motor plant is being enlarged to double the output of motors, and it is likely that the manufacturing of planes will be taken up and a training school established.

Dean Factory Busy

The Dean Manufacturing Company are pleased to report a very large demand for their new type 4 CC, 60 H. P. Fox DeLuxe Aero Motors. This motor weighs 240 pounds, including magneto and two separate carburetors, and is rated at 60 H. P., but actually develops 65 H. P. on the block.

Among recent orders are: One for Mr. Bumbaugh, of Indianapolis, which was developed about two weeks ago; one for F. Raiche, of The Standard Aviation Company, of Clearing, near Chicago, Ill.; one for Mr. Hulbert, of Jeffersonville, Ind., which will be delivered next week; one for the Scarlett Company and the Society of Aeronautical Engineers, of Philadelphia, which latter already have one of our 24 H. P. 4 Cyl. Fox DeLuxe motors, bore and stroke 3½ inches, which they are using in their school machines for grass cutting and are showing very satisfactory results. The Phillips Company, of Somerville, Mass., have also placed their order for delivery June 1st.

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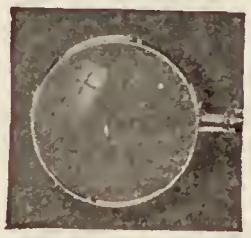
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At the New York Aero Show, fifty-eight per cent. (11 out of 19) of all modern American Aeroplanes had Goodyear equipment.

Farnum Fish, with Goodyear equipment, recently made longest over-water non-stop flight in Aeroplane, flying from Chicago to Milwaukee in 2 hrs. 6 min.

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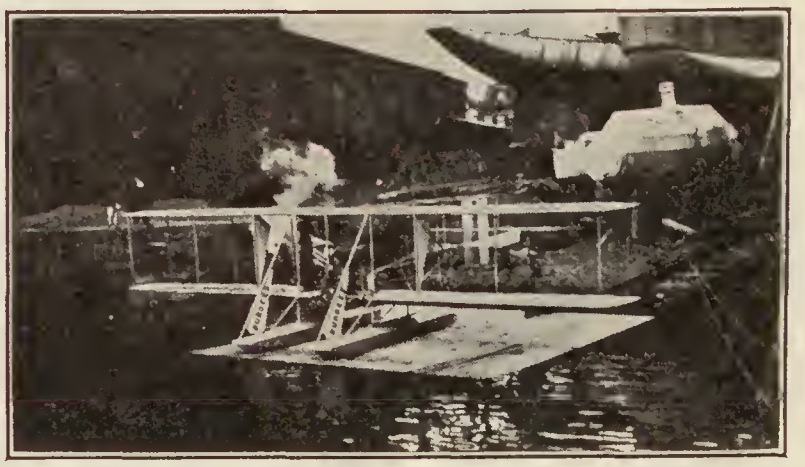
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Students at Sloane School

W. Irving Twombly, well known in New York social circles and an inventor of note, is being taught to fly the Sloane-Deperdussin Monoplane at Westburg. The Sloane-Deperdussin is the wonderful French aeroplane that practically holds all world's speed records. This type is manufactured by the Deperdussin people especially for the Sloane Aeroplane Company of New York.

The Sloane School is in operation under the direction of George M. Dyott, who carried President Madero on a flight in Mexico. There is also at the Sloane School Mrs. W. Irving Twombly. The Twomblys intend to use their craft for excursion purposes at their Long Island home.

Another pupil at the Sloane School is Vermilyua Loving, a multi-millionaire Pittsburgh engineer. He is learning to fly in order to embark on the production of flying machines on a large scale in the West.

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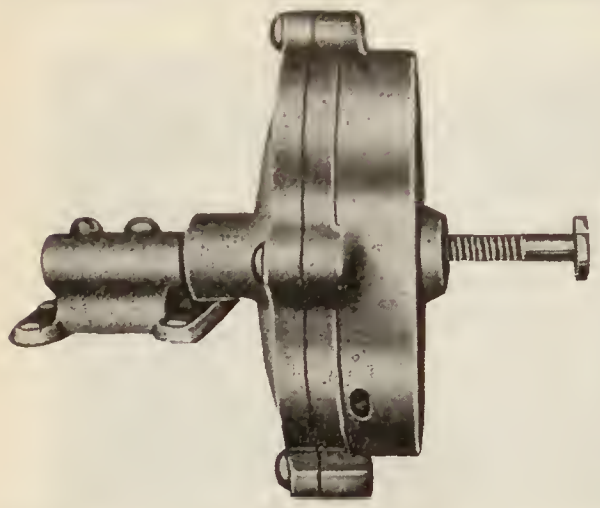


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FORTY H. P., 4-cylinder Featherweight, 1911 Elbridge Engine for sale; first class condition; reason, dissolving of company. Price, $450. E. Ring, 417 Fulton H., Weehawken, N. J.

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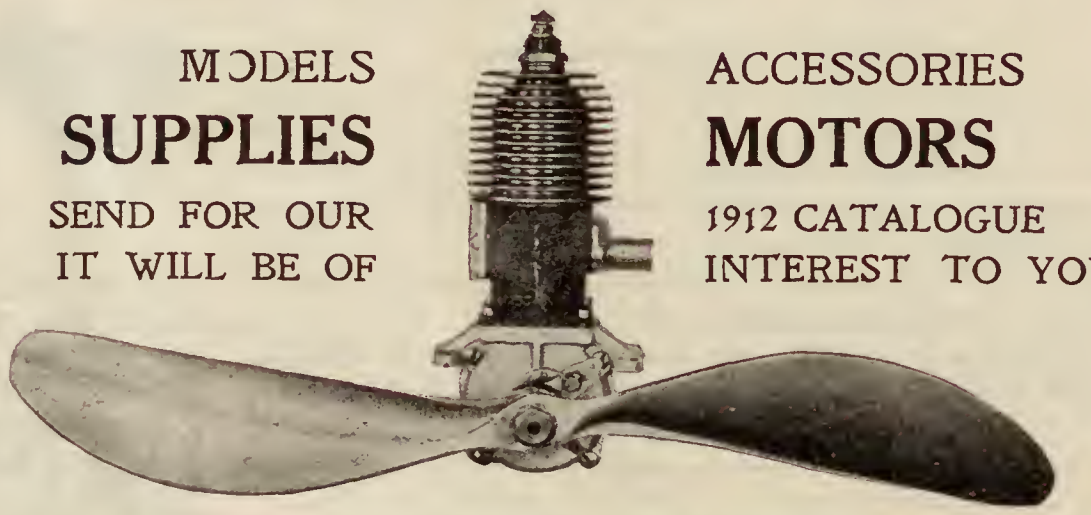
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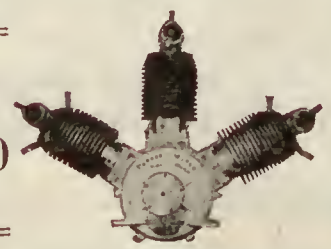
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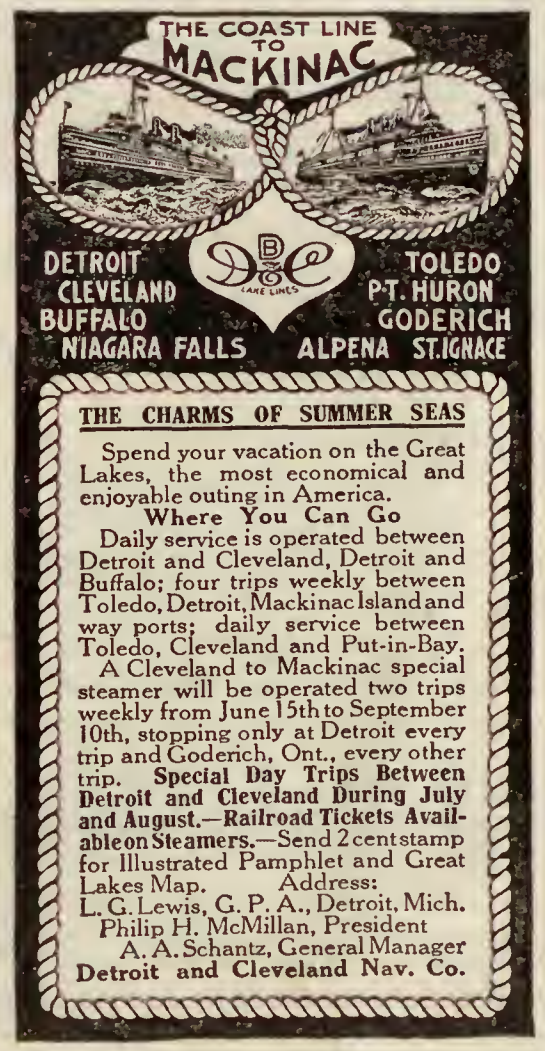
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Aeronautic Notes

Lincoln Beachey has been flying at Baltimore, Md., during the Democratic Convention in that city.

Rodman Law, flying as a passenger with Harry Brown, made a parachute drop from an altitude of 3,000 feet on the evening of June 27th. The flight was made near Hicksville, L. I.

The contest for $15,000, which Edwin Gould has offered to the inventor of a practical heavier-than-air flying machine equipped with two or more power plants that can be operated independently or together, will take place on July 4th at the Hempstead Plains aviation field.

Cecil Peoli, the sixteen-year-old aviator of Captain Thomas Baldwin, has been doing great stunts with a Baldwin "Red Devil" biplane at Mineola, L. I. On his sixth flight he volplaned from a height of 3,000 feet.

Portland, Ore., is to go down in history as being the first city in which an aeroplane flight was made from a high building. On June 12th, Silas Christofferson, in a Curtiss biplane, flew from the roof of the Multnomah Hotel to Vancouver, Wash., eight miles away.

W. Starling Burgess has been making some fine flights on Marblehead Bay with the new tractor biplane recently built for the United States Government.

Roland Garros covered the full distance of the Grand Prix d'Aviation in 15 hours and 40 minutes. In the first day of flying no other aviator qualified. When the aviation race was resumed on the second day a contest was arranged by the Aero Club of France, covering a distance of 293 miles. The prizes were equal amounts of $5,000 each. Twelve passengers were carried in this race. Allard carried four in his machine. Soon after starting, however, Allard's aeroplane fell to earth, breaking the leg of a mechanician. None of the other passengers were injured.

Major Squier, well known in aeronautic circles in the United States, is now in London, where he will reside as the military attaché to the American Embassy.

—

On Friday, May 31, Gustave Hamel, the British aviator, crossed the English Channel for the seventh time. He had gone to Hardelot in France to take an acroplane back to Eastchurch. Hamel made the flight of about 70 miles in 75 minutes

—

Charles Niles has been doing good work with a Thomas headless biplane. On June 10, he flew at Bath, N. Y., for three hours and a half. Niles flew over a course of 14 miles.

—

Competing in the third Michelin bomb-dropping contest, Captain Couade, flying as a passenger with Lieut. Mailfert, succeeded in hitting the target seven times out of fifteen trials.

—

Experiments with hydro-aeroplanes, similar to those carried out by the British Navy, are being made by French aviators. On June 5, Colliex flew from the deck of the French cruiser "Foudre," carrying a passenger and an additional weight of 485 pounds. He made his flight at an altitude of about 400 feet. After the experiments were concluded the hydro-aeroplane was hoisted back on the deck of the cruiser.

—

A hydro-aeroplane contest will be held under the direction of the Aero Club of France, in the Bay of Saint Malo, in the month of August. Prizes amounting to $7,500 have already been subscribed.

BOOKINGS FOR SEVERAL WELL-KNOWN AVIATORS for fairs, exhibitions, etc., can be secured at very reasonable rates. Prompt attention to this ad will enable you to secure a good selection of dates. Address **BOX B 12, FLY MAGAZINE,** Bulletin Building, Philadelphia, Pa.

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Orders should be accompanied by a post office money order for the amount specified, and should be addressed to Book Department, Fly Magazine, Bulletin Building., Philadelphia, Pa. Money orders should be made payable to Aero Publishing Company.

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AEROPLANE PORTIFOLIO. With nine sheets of scale drawings. By D. Ross Kennedy ..... .55

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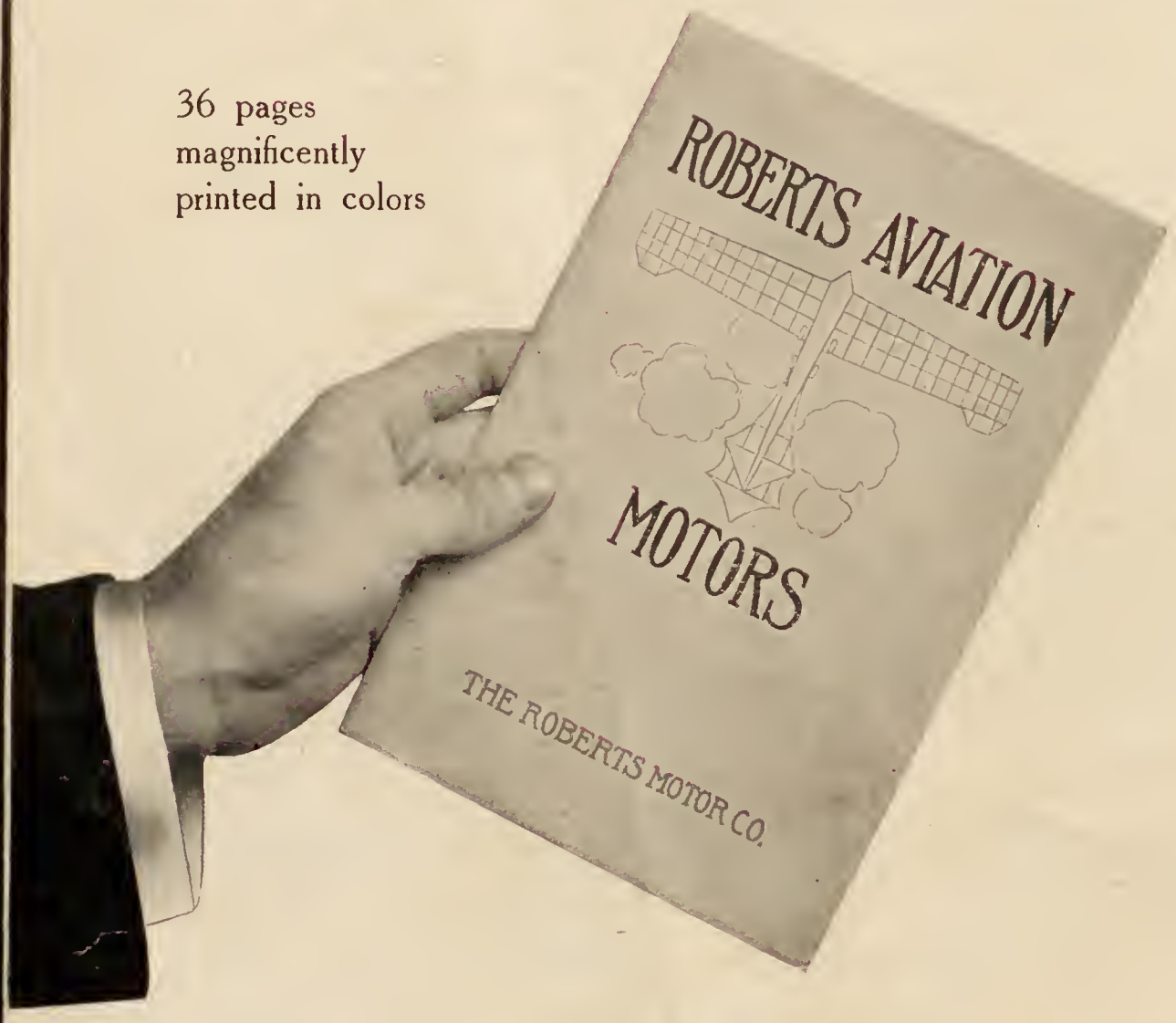
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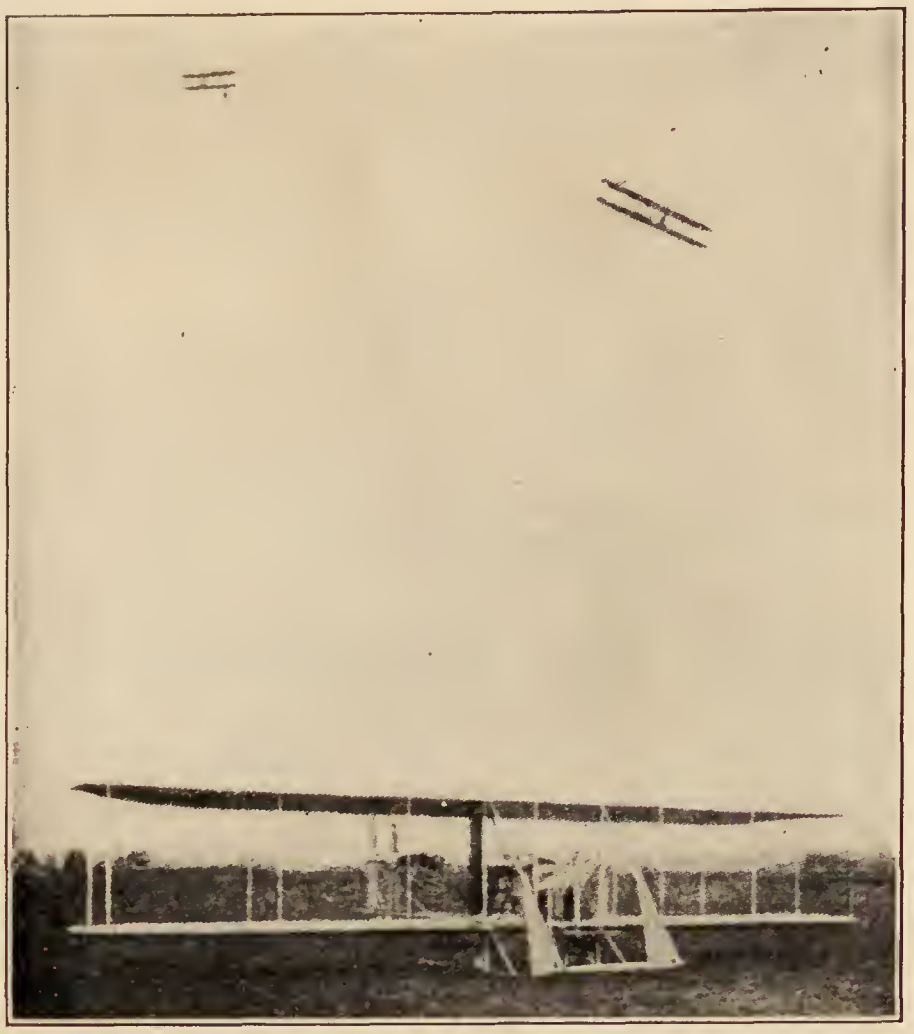
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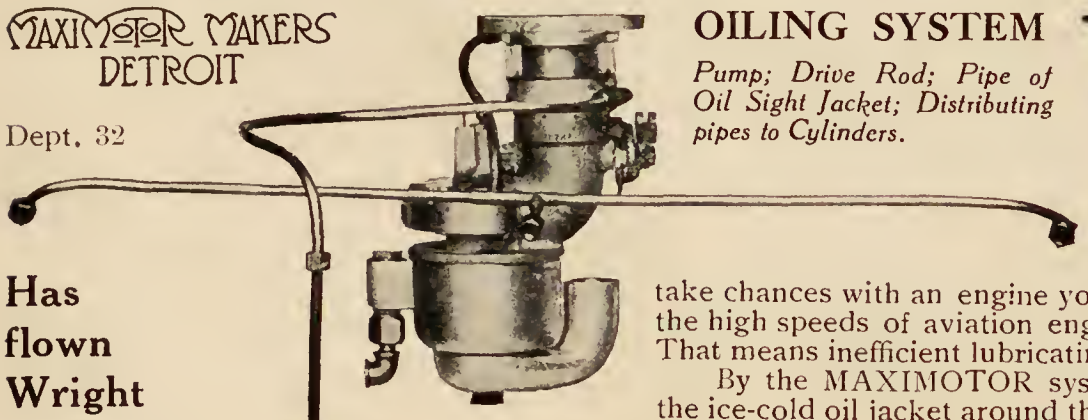
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Austrian Army Aviator Breaks World's Altitude Record

Carries Passenger to Height of 14,301 Feet

IT is reported that Lieutenant Blaschke has broken the world's record for altitude both for an aviator alone and for an aviator and passenger. Carrying a passenger at Vienna on June 30th, Lieutenant Blaschke ascended to a height of 4,360 metres. This is about 14,301 feet and breaks the record held by Roland Garross which was 12,792 feet.

Lieutenant Blaschke flies under the name of Csakay and uses a Lohner-Arrow biplane.

(From *Wiener Luftschiffer-Zeitung.*)

June 30th brought new sensations. They began with the passenger-flight world-record made by First Lieutenant von Blaschke on the opening day. The struggle for the great Grand Prix prize between him and the Frenchmen, and especially the clever Garros, was now the center of attraction and the source of the greatest suspense.

Between them it was that we witnessed the interesting competition for speed, the magnificent and daring circular flights, the darting to a given point, the race to Wiener-Neustadt, with its wonderful start en masse and its dazzling performances; 100 kilometers in 50 minutes or a little over, accomplished by all of half a dozen fliers; its peculiar compulsory-landing competition, the marvelous stunts of the "Acrobats of the air," the "Men-birds" Garros and Audemars, that seemed like an aftermath of the Music-week carried over to Aspern—a veritable flying concert of masterly art and consummate beauty.

Over and above all, something there was that captivated the thousands and thousands of spectators; in the Arrow biplane, by the side of the young officer, the hero of the altitude flight, sat his bride. He took her up 2400 meters, the greatest altitude ever yet reached by a woman in an aeroplane; and at that height, First Lieutenant von Blaschke kissed the brave traveler, Fraulein von Csakay, whose name he had adopted as his pseudonym, but who had now made that name famous herself.

And last came the altitude flight in which Blaschke and his comrade, First Lieutenant Banfield, on the trusty Lohner-Daimler Arrow, reached a height of 4360 meters (14,301 feet), and thereby won for Austria the absolute world record for height, hitherto held by Roland Garros!

It was impossible for the last day to outdo the preceding one, but truly not a soul left the field without the desire to witness soon again the performances of the masters of aviation.

Out of this famous international competition Austria has come laden with honors. On the conquerors' roll, by the side of First Lieutenant von Blaschke, must be inscribed Karl Sablatnig, who won the distance flight in Lower Austria.

Two victories for the little band of our pilots against such rivals; that is surely a success of which one may well be proud.

The Lohner Arrow biplane proved itself a machine full of promise, and the bad weather conditions alone prevented it from attaining its full measure of success. The characteristic feature of the Lohner Arrow biplane consists in the securing of greater stability through the backward arrow-like sloping of the planes and their gradual incline upward.

The lower plane is smaller than the upper, the ribs are slightly arched and pliable at the extremities, so as to insure the greatest possible free control of the air. The body, boat-shaped and entirely enclosed, with the motor, radiator, seats and tanks, forms, with the four-wheeled running gear, an independent whole from the planes, so that, as in the case of monoplanes, it can be carried on its own wheels, after the removal of the planes.

The driver sits in a torpedo-like shell, his head alone protruding, whereby, on the one hand, the air resistance is reduced to a minimum, and on the other hand, the aviator, when driving, is protected.

The lower plane does not extend as far as the body, so as to enable the driver to see the ground right close to the running wheels.

The chief dimensions of the apparatus are: Planes, about 42 square meters; body length, 9.70 m.; cross width, 13.50 m.; height, 3.25 m.; depth of planes, 2.25 m.; vertical space between the two planes, 2.00 m.

The complete weight of the apparatus is 420 kilog. (925 pounds); and it develops a speed of its own of 80 to 85 kilometers an hour.

Legagneaux Makes Speed Record

GEORGE LEGAGNEAUX, the famous French aviator, has created a record for speed with a passenger. He covered 124 kilometres (77 miles) in one hour. This constitutes a world's record. It was formerly held by the late Edouard Nieuport with a speed of a trifle more than 64 miles an hour.

Legagneaux made his record on July 5th, at Compeigne.

IN further competition, at Mourmelon, for the Michelin bomb-dropping prize, Lieutenant Varcin, in a Maurice Farman biplane, has taken the lead over his competitors by dropping nine bombs out of fifteen on the target. This is the record so far in the contest.

Flying for Sport

AMONG the young men who have taken up aviation as a sport is Henry Bingham Brown, of Walpool, Mass. He has spent some time abroad and has returned to this country as a licensed pilot of the Farman biplane and the Hanriot monoplane. He took his instruction at the Blondeau school, at Brooklands.



HARRY BINGHAM BROWN

With his arrival in America, Brown decided to learn the control of the Wright biplane, and accordingly entered the school of George Beatty, at Nassau Boulevard. Brown is now a competent pilot and owns his biplane, which he flies over his own private grounds at Hicksville, L. I., in the early morning light.

Brown is but twenty-two years old, flies only for sport and finds enjoyment in taking his friends for an aerial joy-ride.

Real Duty for Army Aviators

THE army aviation corps has received its first assignment to real military duty in orders issued from the War Department for the despatch of two aeroplanes and operators to Bridgeport, Conn., to take part in the joint manoeuvres there to be held near New York next month. These manoeuvres, in which 15,000 militiamen and about 3,500 regulars are to participate, will take the form of an attack upon and defence of New York City.

Capt. Charles D. Chandler, in command of the Army Aviation School at College Park, Md., will have charge of the aviation detachment ordered to Bridgeport. Lieutenants Kirkland, Milling and Arnold, all qualified aviators, will accompany him. Two aeroplanes will be sent, together with auto trucks and all necessary equipment.

It is planned that one of the aeroplanes and two of the aviators will be assigned to the attacking force, and the other machine, with the two other aviators, to the defending force. The aviators will be expected, according to present plans, to take the air daily and perform scouting duty.

This will be the first time aeroplanes will have been called into service in an army war game in this country. Officers who represented the United States at the German manoeuvres last summer had opportunity to see the progress made by the Germans in military aviation.

These officers said on their return that the aeroplanes played an important part in the German manoeuvres. They rose each day in squadrons, usually early in the morning before the movements of the troops began, and endeavored to learn in detail the disposition of the enemy's forces. Information thus obtained proved of great value to the opposing commanders, it was then stated.

Curtiss Has New Flying Boat

A "Flying Boat," a new type of hydro-aeroplane, declared to be "fool-proof," has just been given its official trials on Lake Keuka, at this place. It was designed and built by Glenn H. Curtiss, and while similar to the "Flying Boat" with which he experimented at San Diego, Cal., last winter, is a great improvement over the former type.

"This new craft practically eliminates the one and only objectionable feature of aviation," declared Mr. Curtiss; "that is, danger. With this hydro-aeroplane, or 'Flying Boat,' as it seems destined to be called, a safe descent can always be made, and if through the inexperience or carelessness of the driver a bad atterrissage is made, no injury to operator or passengers will result. The worst that can happen to them is a 'ducking.'"

The amphibious craft is driven by an 80 H. P. Curtiss motor. The boat is 26 feet long, 3 feet wide and has a depth of hull about equal to the width. The planes are five and a half feet deep and thirty feet wide, and the operator and passengers sit well down in the hull and are protected from the spray by a collapsible, water-proof hood. The boat itself is so strongly built that it can be beached with safety, even through a high surf, and is capable of being handled the same as a fisherman would handle his dory. It may be housed afloat, like a motor boat, or anchored to a buoy like a yacht.

Hubert Latham Meets Death While On Hunting Trip

Pilot of the Antoinette Killed by a Buffalo

NEWS has reached this country that Hubert Latham, the brilliant aviator and sportsman, met his death on June 7th, on the Chari river while on a hunting expedition. The place where he was killed is practically in the center of French Soudan.

A cable message from the Governor-General of French Equatorial Africa states that Latham was gored to death by a wild buffalo. It appears that the aviator was in a forest with a number of natives when he shot and wounded a wild buffalo, which immediately charged him and then gored him to death before other members of the party could save his life.

Latham was a pioneer in the field of the heavier-than-air machine and only gave up aviation for the sake of his mother.

Hubert Latham was born in Paris, January 10, 1883. His family were of English parentage, but when he was born they had lived in France for three generations, marrying French women. At the age of twenty, Latham went to Oxford for one year. After he had passed his law examination, he left Oxford to serve his two years' service in the French army and was a private at St. Cloud. Later he entered the office of a shipping company, but was too fond of travel and adventure to remain there long, so he went to the Soudan on a hunting expedition. Subsequently he spent a year in the Soudan and Abyssinia and then started on a tour around the world, but was recalled to attend to family matters.

Hubert Latham's flying career is that of the Antoinette monoplane. He gave the machine its success, and the monoplane made him fame. The story of how he came to handle it is an early romance of aviation. A poor but brilliant mechanical engineer, Levavasseur, had an ambition to build a flying machine. He invented the strongest and lightest motor in the world at the time. He did not think it worth while to ask any one to put money into a motor intended to drive a flying machine, but took his secret to the firm of Gasternbide & Mengin, who were induced to build it. The motor won races for boats and automobiles.

Santos-Dumont, the "ferret" of aeronautic opportunities, ordered an even lighter one. With it he got off the ground and flew. With the same motor, Delagrange, Farman and Bleriot made flights. Levavasseur stood aside and saw his engine enable others to make their machines fly. Then he set about to build an aeroplane. He had difficulty in securing financial backing, and finally the same firm that had made his motor a success offered aid. Smashup after smashup marked the beginning of the machine. It was a tricky vehicle, and no one dared to ride it. About this time Latham appeared. He was young, but blasé, after an eventful life spent in travel, partly in the gay centers of Europe. He was in ill health.

"I will try the machine," Latham said, "and will continue flying with it no matter how often I smash it. If I get killed, all the better—but you must repair it for me." That was satisfactory. Latham began flying and had accident after accident until it was his boast that he had broken every part of the machine many times. After its first flights the monoplane was christened the Antoinette, after Miss Antoinette Gasternbide, daughter of one of the men who had made it possible.

In this fearful and wonderful manner Latham and the Antoinette developed together.

Twice in 1909 he attempted to cross the English Channel in the monoplane, but each time fell into the water. The first time he was found calmly sitting astride his floating machine, smoking a cigarette. The second time his nose was broken.

Latham took part in aviation meets at Los Angeles and San Francisco in the winter of 1910, wrecking his machine twice. Afterward he went to Japan and on a tour in Asia. He had won $100,000 in prizes as an aviator.

The following from the New York *Sun* describes Latham as he was known by all: "He was a stranger to fear. It was the growing commercialism of flying that decided him. 'Aviators at meets,' he said, 'are now showmen. I am not a showman.'

"Young, handsome, high spirited, and noted for a genial temper that no mishap could ruffle, Hubert Latham was a general favorite and the most popular of aviators. He was not a showman, as he said, but an amateur; hardly, perhaps, under the rules, but in the best sense. He loved his beautiful monoplane not only for the hours of undisturbed meditation that it afforded him as it glided through the upper spaces, but for the exhilarating perils that it had carried him through. To fall in the excitement of the chase in a tropical wilderness was perhaps the kind of end that a Frenchman of his adventurous spirit might be expected to come to if he had not been a knight of the air; but Hubert Latham was so much at home in the fathomless blue that destiny seems to have played him a scurvy trick. It is easier to imagine him sailing off over a tranquil sea and never being heard of again."

THE French army dirigible Conte carrying nine passengers made a scouting flight of sixteen hours duration from Issy on July 12.

New Books for the Aeronautical Library

Additional Volumes on the Science of Aviation

(See Fly Magazine *Book Department in the advertising section for the latest and best books on aeronautics.)*

Practical Aeronautics, written by Charles B. Hayward, formerly engineering editor of *The Automobile,* is the most complete and comprehensive volume yet published of its kind. It contains an introduction by Orville Wright, and is copyrighted by The American School of Correspondence.

It treats, in a non-technical way, with all classes of air craft, their history, their construction, their management and their problems.

The first ninety-eight pages record the history and development of the dirigible balloon. The principles underlying their design and construction and the methods of management of all the world-famous dirigibles, with a record of their accomplishments, is told in a very attractive style.

Ninety-eight equally interesting pages are devoted to the "Theory of Aviation." Here, the evolution of the aeroplane is closely followed. Much space is given to laboratory and experimental work that is now being carried on in the hope of solving problems that yet show as defects in the aeroplane. Laboratory equipment and methods of investigation are described and the results given.

Elementary Aerodynamics is treated in a most clear style. The theory of soaring is fully elucidated.

Under "Types of Aeroplanes," complete scale drawings are given of all the leading machines, and many others are described under "Special Types," some with scale drawings. The types of landing devices are given special treatment. Twenty-two pages are devoted to the hydro-aeroplane.

The aeronautical motor is taken up in the same direct complete manner which marks the character of the book throughout. Sixty-six pages of illustrations and descriptive matter are devoted to this subject. Thirty-three of the leading motors are pictures besides many diagrams of working parts.

The theory of the action of the propeller, the manner of its construction and the mathematics governing its efficiency are very clearly stated.

A good portion of the book is devoted to "Aeronautical Practice." The methods of securing stability are described, and various devices designed to insure automatic stability are shown. The method of measuring altitude and altitude records are given. Eleven pages are devoted to "The Legal Status of the Art." The history and the possibilities of the use of the aeroplane and the dirigible for military purposes is well treated, and the results obtained with wireless telegraph and other methods of signaling are recorded.

The author has spared no care in making this work accurate in every detail and complete. It contains 796 pages, is richly illustrated, and a glossary is appended. Its arrangement and style throughout are highly pleasing. It is a reference library of the history of aerial achievement.

The Mechanics of the Aeroplane, by Captain Duchene. Translated from the French, by John H. Ledeboer and T. O'B. Hubbard.

There is no better book yet on the market for instruction. It has been awarded the Monthyon prize by the French Academy of Science, and is just published. The writer shows a thorough practical acquaintance with aeroplanes and with laboratory experiment. The principles of flight are simply and clearly stated. Its arrangement follows a well made analysis of both the conditions to be met, and the constructions meeting them.

Clearness is further increased by complete references, and by valuable mathematical formulae that are presented in an unobstrusive manner. The present state of the science is fairly portrayed, and the field for future development in both theory and practice, is pointed out. It is complete, concise and clear.

This book merits a wide circulation. It appeals alike to the student, the seeker for general information concerning principles, and to those interested in development.

Building and Flying an Aeroplane, by Charles B. Hayward, is an addition to the aeronautical library that claims a place because of its purpose; to prevent the belittling of the value of accurate design and the misjudging of the true importance of small things.

In this text-book an effort is made to induce the student and individual who build aeroplanes to get beyond the theory of flying and to put into an aeroplane practical construction.

It is a practical handbook which covers not only the building of full-sized gliders and aeroplanes, but models as well. The book contains a full description of the Curtiss biplane and Bleriot monoplane, together with scale drawings of the same. Detail drawings are given, with dimensions of all parts, the methods of shaping the struts and ribs, the form of running gear, the size and form of ailerons and rudders, together with a description of the method of mounting the motor.

The article on "Accidents and Their Lessons," has been given principally with the idea that every young operator should realize the fatal results of foolhardiness, lack of experience, and poor building, and should correct these shortcomings as far as possible. The book should

THE AERO CLUB OF PENNSYLVANIA



Room C. Bellevue-Stratford Hotel

Philadelphia, Pa.

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OFFICIAL NOTICE.

By vote of the Club, the stated meeting in August will be omitted. In the event of a special meeting, written notice will be sent to all members.

GEORGE S. GASSNER, Secretary.

CLUB NOTES.

In spite of the intense heat, a goodly band of enthusiasts met on Friday, July 5th. Routine business was transacted, and matters of interest discussed.

The Club decided to omit the August meeting, and adjourned until Friday, September 6th.

The Club balloon, Pennsylvania I, which leaked badly at the last ascension, has been sent to the maker, A. Leo Stevens, of New York, for revarnishing. A number of ascensions are booked for the summer and fall. Two of our members will soon apply for their pilot licenses.

A large sign, eight by fourteen feet in size, has been erected at the Eagle Field, on the West Chester Pike, about three miles from the city limits. It bears the painted pennant of the Club with the name of the field. It is placed in a prominent position where it can be seen by the thousands who pass the field every day.

One of our members, Mr. Oliver G. Simmons, has the distinction of being the first officially commissioned aeroplane carrier of mail in the State of New Jersey. He has made a number of flights in the discharge of his official duties.

The Club is moving actively for Federal supervision of aerial navigation. At a recent meeting of the Club the following preamble and resolutions were adopted, and ordered sent to the members of Congress from Pennsylvania.

At a meeting of the Aero Club of Pennsylvania held on May 10, 1912, the following preamble and resolution were unanimously adopted:

Whereas, several of the individual States have already considered or passed statutes for the regulation and control of the navigation of the air; and

Whereas, the conflicting statutes in the different States regulating automobiles traffic and licenses show what may be expected if the control of aerial navigation is left to the individual States; and

Whereas, the navigation of all water ways is, and always has been, under the control of the Federal Government; and

Whereas, the science and practice of aerial navigation has now reached a state of development which places it among the means of interstate communication; and

Whereas, the regulation and control of all interstate communication is vested in Congress by the express provisions of the Constitution; therefore be it

Resolved, by the Aero Club of Pennsylvania, That it strongly urges upon Congress the necessity for the passage of a National Statute for the regulation and control of the navigation of the air by all forms of air-craft, and for the issuing of licenses under governmental supervision to competent aviators.

C. P. WYNNE,
President.

Attest:

GEO. S. GASSNER,
Secretary.

Russia Orders Parachutes

A DISPATCH from St. Petersburg states that the Russian Government has ordered from M. Lomatzsch 200 automatic parachutes for aviators, with which highly successful experiments have been conducted by military engineers at Gatchina. Hitherto the trials have been only with dummies, weighing 180 pounds, but the apparatus will be tested by aviators, who will jump from heights ranging from 300 to 600 mètres. The main idea of the invention is as follows:

A box containing the parachute is strapped onto the shoulders of the aviator. It is connected with the aeroplane or other flying machine by a string, which snaps under a tension of two kilos. At the same time the box is automatically opened and the parachute released, springing two mètres into the air at an angle of about 40 degrees. The length of the string is a matter of choice, but will be greater for biplanes than for monoplanes. Box and parachute weigh 18 pounds. The parachute is made of silk and its area is 50 square mètres.

Trials with dummies have been made with invariably successful results in perfectly still weather, and in a wind blowing 12 mètres a second. The dummies were dropped out of balloons head foremost, feet foremost, or in a horizontal position, but in all cases the parachute was fully opened three seconds after the breaking of the string, during which time there was a drop of from 10 to 15 mètres. The subsequent rate of descent averaged 1.60 mètres a second.

Grand Duke Alexander Mikhaylovich, president of the Russian Aviation League, has been taking great interest in the experiments. The inventor is M. Kotebnikoff, formerly artillery officer.

An Analysis of the Forces of Flight

By George A. Spratt, Jr.

The contents of these articles were read in condensed form by Mr. Spratt, before the Aero Club of Pennsylvania, in the Bellevue-Stratford Hotel, Philadelphia, Pa., on March 10, 1912.

Introduction

Through ages Nature has been building—building, tearing down, rebuilding. Nature is the expression of a purpose steadily flowing into a mould whose limiting sand is uselessness. Nothing exists without a merited right to an existence, be it matter, life or spirit. Man's ability to destroy is his power for analysis. He can observe, and can see only what is; he can conceive of nothing that is not. In analyzing he uncovers ELEMENTS *which are the accepted building materials of Nature. He can imitate and, having the elements, can imitate to his own purpose. Nothing that is conceivable to him is impossible to him. His imagination sets the limit to his achievement, the intensity of his desire determines the speed of accomplishment. This being true of the mass is, only in a less degree, true of the individual.*

This "creed" constitutes my only right to be a worker in the field of aviation.

GEORGE A. SPRATT, JR.

From my earliest interest in flight I was convinced that there was some fundamental principle, some truth or truths, which gave to flying creatures an assurance of security, and which, probably because of its very simplicity, had remained unrecognized, for attempts to fly had met only with failure. This could be only because the analysis was incomplete, and I turned my whole attention, without reserve, to observing, separating, classifying and verifying, although without having had any training for such work. Opportunities have opened unexpectedly to me. Success has attended my search in greater measure that I dared hope for. A science has sprung up and grown to greater proportions than I ever expected to see, bearing encouragement and a conviction that my search was not ill-timed.

Among the opportunities referred to, three stand out with especial prominence. A little more than a year after I had started my search I made the acquaintance of Mr. O. Chanute, an acquaintance that began in 1898 and continued until his death. Throughout this acquaintance he was earnestly and disinterestedly devoted to securing a solid advancement for the science, and his helpful encouragement was given freely to me. It was given in like spirit to all who knew him, or would accept. His work was of that kind that commands success, not fame. The achievements of today mark the place of his being, more than that of any other one man.

A home on a farm on the hills has been mine with its opportunities for observation and investigation in the home of the flying creatures.

As a result of Mr. Chanute's interest in the work of the Wright brothers, he asked that he might communicate to them a method I had devised for studying pressures. This resulted in proving its value as a guide to construction, and I was privileged to witness the accuracy of deductions and calculations based thereon, and upon tables they prepared and incorporated in their machines at Kitty Hawk in 1901, 1902 and 1903. My interest, however, was centred in analysis, not in construction. That analysis would be complete when a verified solution could be given for every action observed resulting from the impact of a rigid body with air.

All my observations led to the belief that Nature's creatures fly in stable equilibrium. If this could be proven, the solution of flight would be much simplified. Every observation confirmed the belief that the solution is simple.

The barn swallow calls her young to the open when they first leave the nest; distress is in her note only when they near obstructions.

The first flight of the butterfly is as perfect as any it ever makes; and, to a like degree, experience does not improve the blundering clumsiness of the beetle. Flying for flyers, and walking for walkers, is an equally simple acquirement. Man, being a walker, has first scientifically analyzed walking; flight has remained obscure.

The frequent readjustment of the vulture's surface has been advanced as evidence of the skill necessary to preserve equilibrium, but the almost incessant readjustment of the steering gear of the steamboat is not accepted, with like reasoning, as a source of equilibrium; both have a course to preserve through varying currents.

Nature's great variety of wings declare simplicity, although it has brought confusion to many observers; here is variety in construction, in shape and in action.

Note the feathered wing of the bird; the elastic membrane of the bat; the board-like wing of the butterfly. See the manner of jointing that permits folding. The wings of the bird, the house fly and the butterfly are familiar; the beetle tucks his curiously beneath his elytra; the wing of the flying grasshopper and wasp, fold together like a fan; the dragon fly has no provision for sheltering his. There are creatures with four wings, creatures with two, and the silver maple seed soars successfully with but one. Where there are four, note the variety in pairing in the wasp, the dragon fly and the beetle. Note the long narrow wing of the sea bird, with its decided double curve from body to tip, and the blunt wing of the bird of the thicket. As types of action, note the noisy hovering of the

humble bee, who moves forward, sidewise, or backwards, with equal ease; the peculiar wavy progress of the butterfly; the steady flapping of the crow; the quiet floating of the vulture.

There is no other conclusion possible than that there is some underlying principle that is at once so broad and so simple that it is readily within reach of this great variety, each of which is defining this principle with its own distinctive voice, all declaring a clearly defined simplicity.

If a like problem with a solution could be found it would lend assistance, both in preparing the mind to receive a solution, and also directly in solving the problem. But does not terrestrial locomotion supply this want?

Forget for the moment comparative anatomy, and to the general appearance of the means of flight, compare the general appearance of the means for terrestrial progression. Notice the joint that is midway between the body and the ground with its opposite bending in man and in fowl, and in the front and hind legs of the horse, while in the elephant this bend is in but one direction. Beside these with two, and with four legs, see the number in the insect; the spider, and the centipede. Consider the manner of action of those already mentioned and recall the toad; the snake; the snail. Surely the variety in construction, in shape and in action found in wings is no greater than in legs, but the mechanical action of the latter has long since ceased to excite interest, for one word explains all—the *lever*.

In the following analysis I hope to make clear fundamental laws that seem to me to stand in the same relation to flight as do the laws of the lever to terrestrial locomotion.

If the reader's imagination is such that he can see in the wheel, the resemblance to a leg made perfect in its action, then in accepting my analysis, he will see that, as by means of the wheel all animal forms have been surpassed in burden bearing, endurance and in speed, in a like degree the wing will be brought to do the service of man.

* * * * * * *

The Effect of Curvature Upon Pressure

When the effects of the pressure upon a plane, such as a sheet of metal, are compared with those obtained with the same sheet after arching it, the results are, in certain respects, so different that the relationship of the surfaces so formed seems lost. These differences are, mainly, in the three following points: (1) When arched, one side only, the convex side, leads when the sheet is let fall; (2) the point called the centre of pressure does not move the same distance as upon the plane, nor always in the same direction, for an equal change in the angle of incidence; (3) the pressure is greater than upon the plane when the concave side is presented to the current, is less when the convex side is presented, and a pressure exists when the chord is parallel with the current which acts perpendicular to the chord and current. Each of these results, which are peculiar to the curved surface, calls for a clearly defined explanation.

The following experiment was made for the purpose of establishing the relationship between the action of these two surfaces, the non-existence of which relationship of action is inconceivable since the surfaces may be one and the same, and also to determine, if possible, where occurs this apparent loss of a regular conformity of action for so slight variation in form. The experiment is based upon the assumption that since it is a logical conclusion that the pressure due to velocity is equal in amount and distribution whether the surface or the current is considered as moving against the other, it is as logical to conclude that the pressures peculiar to curvature are of equal amount and distribution whether the surface or the current be curved.

A semicircular board of about 12″ radius is attached to the floor, or table, so that it will turn horizontally about its centre. In a line that is tangential to this board, and not far from it, secure a piece of wood 1″ x 1″ x 36″, to serve as a guideway. Out of the block of wood make a rider to slide upon this guideway.

At the circumference of the board erect a stiff wire to stand about 8″ high and with a pointed upper end. Place a similar wire to stand erect from the rider. These serve as posts upon which the surfaces are to be delicately poised.

The surfaces are both of the same dimensions, 7″ x 12″. They may be made of paper with stiffening ribs of wood, or of sheet metal. One is to be curved along its longer dimension to the same curvature as the circumference of the board, the other is to be a plane. They are to be supported upon the wire posts with their surfaces vertical and their longer edges horizontal. Midway along the longer edges of each a flange, or tongue, is turned perpendicular to the surface. The flange, or tongue, on the lower edge should have a hole that loosely admits the post, bored close to the surface; the one along the upper edge should have a depression to engage the pointed end of the post.

Slip the plane upon the post on the rider, and the curved surface upon the post on the board. Connect the rider to the board by a narrow tape passing along the circumference, so that when the rider is drawn along the guideway, the tape unwinds from the circumference as it turns the board about its centre.

The conditions, now, are these: The plane is delicately poised upon its post and, when the rider is drawn

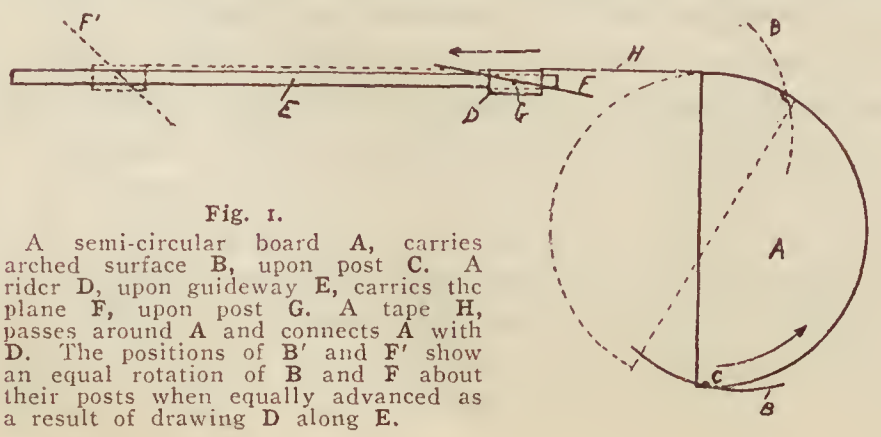


Fig. 1.
A semi-circular board **A**, carries arched surface **B**, upon post **C**. A rider **D**, upon guideway **E**, carries the plane **F**, upon post **G**. A tape **H**, passes around **A** and connects **A** with **D**. The positions of **B′** and **F′** show an equal rotation of **B** and **F** about their posts when equally advanced as a result of drawing **D** along **E**.

along the guideway, moves straight through still air. The arched surface is similarly poised over the circumference of the board and, when the rider is drawn along the guideway, moves through still air in an arched path, the curvature of which is of the same radius as that of the surface. Each move the same distance with the same speed. Each have the same area, dimensions, and weight, and each have the same area in front of, and to the rear of, the posts. When each is given the same slight angle of incidence to its respective path and the rider is drawn along the guideway, each rotates to an equal degree about its post. (See diagram 1.) The pressure must, therefore, be of equal distribution and of equal amount. (This test holds good for a rotation of nearly 90 degrees, but as the chord of the arched surface approaches coincidence with the radius of its path; that is, the radius of the board, the similarity of the conditions under which both surfaces act becomes lost.)

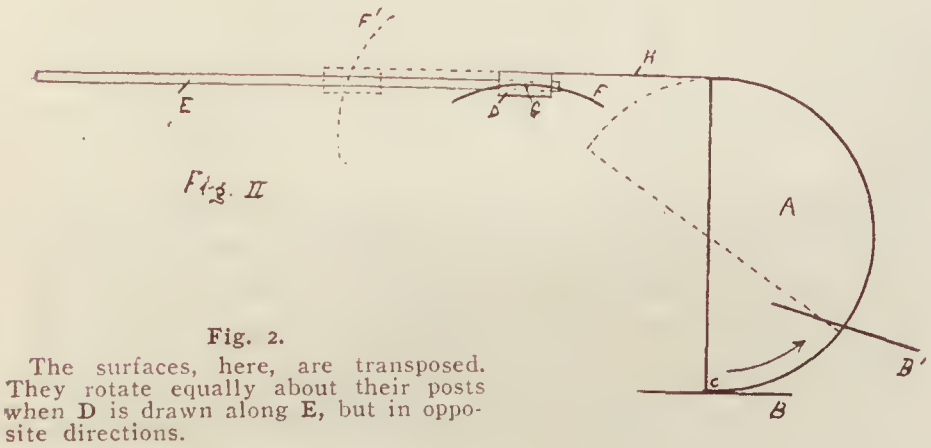


Fig. 2.
The surfaces, here, are transposed. They rotate equally about their posts when D is drawn along E, but in opposite directions.

Now exchange the surfaces, placing the arched surface upon the rider and the plane upon the board. Set the chord of the one parallel with the guideway, and the plane of the other tangent to the circumference of the board and repeat as before. In the previous test, it may be said that two like surfaces operate under like conditions, although one is a plane and one an arc. The results are alike. In this test, two like surfaces act under conditions that are dissimilar to an equal degree of dissimilarity. Here an arched surface engages a straight wind and a plane engages an arched wind with all the conditions equal in each. (See diagram 2.) The results, here, are dissimilar to an equal degree of dissimilarity; for, when drawn through the air, each surface rotates equally about its post, which again shows that the pressures are equal in amount and distribution, but now rotation is in opposite directions. (This phase of the experiment will be referred to later.)

The experiment shows that under like conditions like surfaces give like results and, therefore, if unlike results are obtained with like surfaces, the cause must be looked for in the conditions under which the results were obtained.

When the conditions under which the results are obtained in this experiment are considered, it shows, farther, that the distribution of the pressure is effected to a great degree by the relation of the curvature existing between the surface and the current, and cannot be fixed for all currents by any fixed curvature of the surface.

There are three sets of conditions under which a relation of curvature may exist between a surface and a current, each of which will be considered in turn. 1st, a curved surface may move straight through still air, or be fixed against a straight current. 2nd, a plane surface may move in a circular path through still air, or be fixed against a rotating current. 3rd, a plane surface may rotate about an axis within itself while moving through still air, or while fixed against a straight current.

From the experiment just described it is also evident that it is pressure with which the problem has to deal, and that neither the air nor the body are of importance excepting as their state of being effects the pressure.

If the air is considered as moving against the body, the manner in which the surfaces of the body are presented is all important to the results obtained, for the surface is the means through which the energy of motion is transferred from the fluid mass of air to the rigid body. The manner of transference has long been recognized and formulated in the law: "Frictionless pressures are normal to the surface at the points of their application," and although the pressures considered here are not entirely frictionless, they will at present be considered so for the sake of analysis.

(A second paper will appear in the September issue of FLY)

Aeroplane Test in France

TO ascertain whether it is necessary to shelter aeroplanes from the weather at night and at other times when they are not in use, Maurice Farman left one of his machines exposed for twenty days at the Buc Aerodrome. The experiment proved that a machine can be kept in a high state of efficiency under these conditions. The machine was inspected daily by a military committee.

Flights were made daily with the aeroplane. When the trips were ended the wheels of the machine were placed in two holes, so that the aeroplane rested on its ski-like runners. Leather coverings were placed on the propeller and motor, the levers were carefully tied and the aeroplane was fastened to the ground by means of ropes and stakes.

Under these conditions the aeroplane was subjected to heat, cold and wind, and it was found that on the twentieth day it flew as well as on the first. From a military standpoint the results of the experiment are very interesting, for it will no longer be necessary to transport sheds or tents and a large number of men to dismantle and place machines in condition again for flight.

THE German aviator, Schirrmeister, on July 5th, established the world's record for time in the air with four passengers, while flying at Leipsic, Germany. The machine was aloft 33 minutes and 42 seconds.

An Old Time Flying Machine in 1878

By Russell Whitcomb. Author of "Skimming the Skies"

ON the 25th day of June, 1878, my young eyes opened wide at an announcement which I read in the *Boston Globe*. It was set forth in glowing language. "The Great Question of Aerial Navigation Finally Settled." "The World's Wonder, the Flying Machine, Will Navigate the Air Subject to the Control of the Operator." With these and other statements burning in my young brain, I drifted through the school hours in an absent-minded way until released, then with light heart and hurrying feet rushed to the exhibition hall, to willingly pay my twenty-five cents for a chance to see a man fly.

"Could it be a hoax?" I questioned, and would I get swindled out of my money, as some of my schoolmates had asserted when I had wanted them to join me. If so I was game to take a chance, for I had just before that heard a machine talk back my very words, and in my own voice, even if in rather squeeky tones, for Edison had just exhibited his "talking machine" in Boston for the first time.

As I entered the big hall in the Tremont Temple they were just ready for the final flight of the afternoon, and the operator, Mark Quindland, was taking his place upon the metal frame beneath a sausage-shaped gas bag of one of the earliest dirigibles to make actual flights in this country.

The suspense and silence among the spectators was most impressive and to me awe-inspiring. With beating heart and joyous excitement at being there in time, I stood glued to the first spot from which I had gained a full view of the mysterious craft, which now was swaying slightly with the motion occasioned by the pilot taking his place.

At a signal from Prof. Ritchel the horizontal propeller began whirling, while the craft began slowly to rise until it nearly reached the high ceiling, then the forward propeller began to whirl in its perpendicular position and draw the ship forward, where it turned the corners and continued to circle about the hall, twisting and turning as the pilot wished and rising and falling in response to the direction in which the horizontal propeller was driven.

After a full demonstration of it being in complete control, it came back with ease and alighted on the very spot where it had ascended, which was greeted with enthusiastic praise and applause by all present.

Prof. Ritchel then explained its construction and operation to those of us who had come in late, and I was in the very front row with ears and eyes open. The gas bag, which was 35 feet long by 13 in diameter, was made of linen and treated with rubber on the inside, its weight being sixty-six pounds. It was filled with hydrogen gas. Over this cylindrical bag ran broad bands of braid, which held suspended below a one and one-half inch nickeled brass rod 23 feet long. From this was hung by cords the frame of the car or machine. This, as described in the *Boston Globe,* was as follows:

"The after-portion of the machine is at the base a parallelogram of hollow brass tubes, light but strong, 2 feet wide and 5½ feet long, from which rise, lengthwise, curved rods 18 inches high in the center and drawn together at the top. Above the apex of this form rises a cog-edged steel wheel 11 inches in diameter, with double handles, so geared to a four-bladed fan, moving horizontally directly beneath, that the operator can give the fan two thousand revolutions per minute."

This was a four-bladed propeller of 24 inches diameter and a superficial area of 50 square inches. The horizontal propeller can be revolved in either direction to "lift" or "lower."

Behind the wheel was the seat for the operator, his feet resting on two treadles, by which he controlled the action of another propeller that was at the forward end of other rods that extended from the main framework. This propeller was in a vertical position and 22 inches in diameter and made twenty-eight hundred revolutions per minute. This was controlled by the operator's feet; pressing the left treadle threw it into gear, pressing the heel of the right foot made it turn to the right, and a pressure of the right toe turned it to the left.

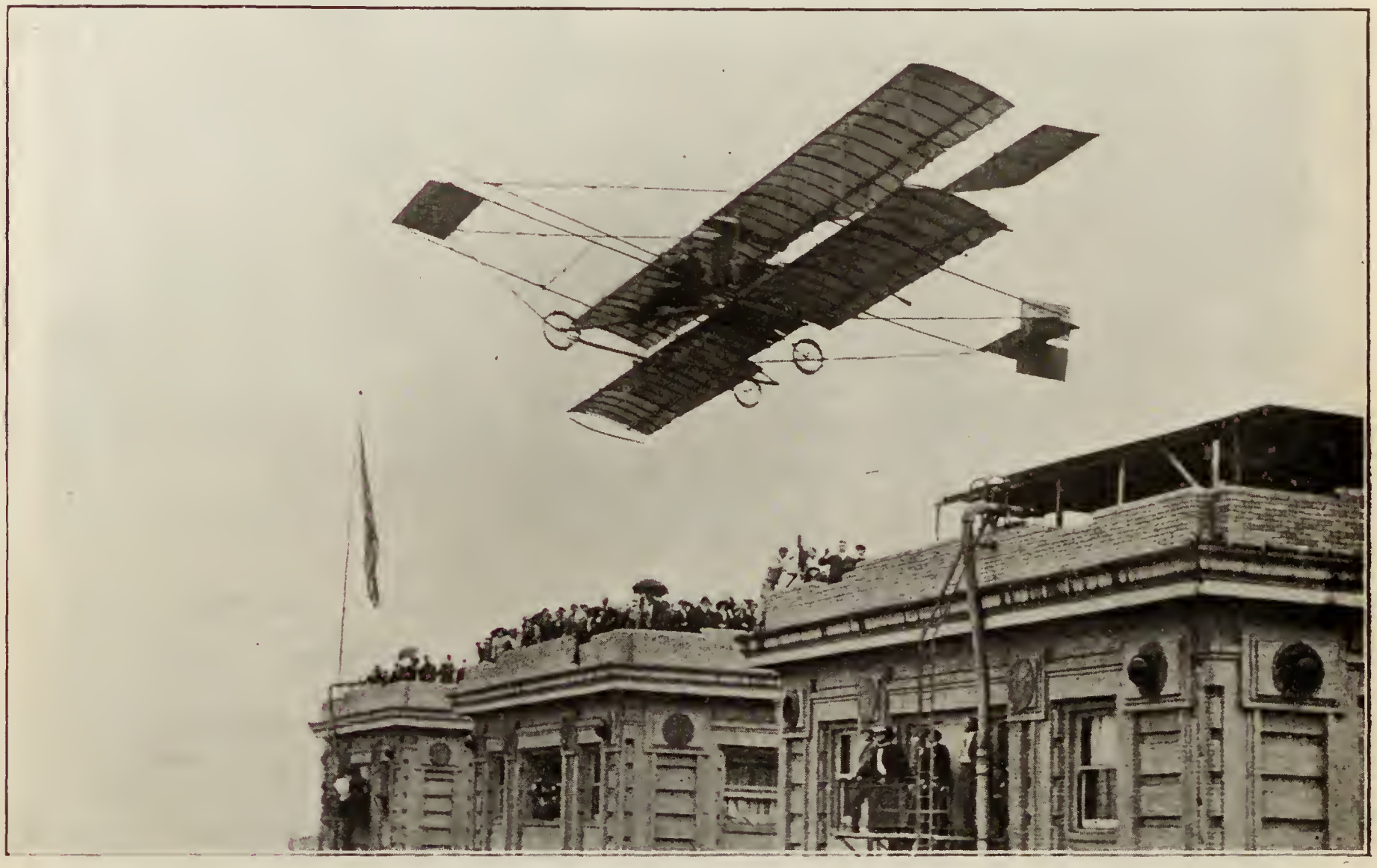
The total weight of the gas bag and machine was one hundred and forty-four pounds and the operator weighed ninety-six pounds, and also carried several pounds of ballast.

The most interesting flight that took place, and which I recall very vividly, was one made in the open air from the Boston Common, when the operator rose several hundred feet and circled about at what seemed to me in those days a most dangerous height. I think the day was not as still as desired, so no long flight was undertaken, but the week previous a flight had been made across country at Hartford, Conn., when the craft rose 1,000 feet or more, and flew ten miles from that city and worked back against the wind by "tacking" to Newington, only five miles away. This was its second flight, the first having been the day previous, when it rose to 250 feet altitude and demonstrated that in little wind it could be moved about at will and raised and lowered as desired. It returned from this flight and made a landing within a few feet of its starting point. Then claim was made that the operator could work it in a calm for four hours without fatigue, and the professor stated that it was but the beginning of what would come with the perfecting of the ideas he had given the world.

Professor Ritchel was a Maine man, but went to Corry, Pa., some years prior to 1878. He had studied the problem for ten years, the last seven having associated with him W. H. Lyman, of Corry, Pa., who aided him in the making of the gas and other ways, but it was claimed that the invention was properly to be credited to the professor.

Prior to the perfecting of this machine they had made another and tested it at Bridgeport, Conn., but it proved to be too heavy in construction and of inefficient power. The first successful flight was that made at Hartford, where it had been taken for trial after being exhibited in the "Permanent Exhibition" at Philadelphia, May 10, 1877.

Aviator Flies From Hotel Roof



A Foolhardy Flight From a Hotel Roof in Portland, Oregon

ONE of the most spectacular flights (and also one of the most reckless and foolhardy) took place in Portland, Oregon, on June 11th, when Silas Christofferson flew from the roof of the Multnomah Hotel. It is the first time in the history of aviation that such a feat has been accomplished, and it is to be hoped that for the good of the sport and science that it will be the last until the aeroplane is developed beyond the present type.

Christofferson soared from the 150-foot runway at 2.35 P. M. in a steady rain and landed twelve minutes later on the artillery drill grounds at Vancouver. Fifty thousand persons gathered in the streets and on the roofs in the vicinity of the hotel to see the aviator meet with an accident as they firmly expected he would.

It unquestionably took considerable courage to complete the flight, but such men as these are needed for more sensible flying and for more important work. It is a safe venture that many of the accidents that have cost the aviators their lives have resulted from foolhardy flying. They have probably attempted and succeeded in making a dangerous dip or bank, and that success encouraged them in the belief that they could continue to take the chances and always be safe.

So it is with flying from the roof of a hotel; this flight was successful, the next one may be followed by a funeral. However, it is encouraging to learn that immediately after the flight pontoons were attached to the machine and Christofferson is now flying over water.

Dangerous flights should be avoided. We want to build up a sentiment in favor of aviation and not destroy it by abusing our newly found wings.

Dirigible Akron Explodes Carrying Crew to Death



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THE CREW OF THE AKRON

Reading from left to right; George Bourillion, Calvin Vaniman, Melvin Vaniman, Fred Elmer and Walter Gest

THE loss of the dirigible balloon Akron, together with its captain and crew, marks a disaster in dirigible ballooning without parallel in this country and with but few abroad.

On July 13, 1910, Oscar Erbsloeh, a noted aeronaut and inventor, was hurled to earth with his crew of four men at Leichlingen, Rhenish Prussia, when his dirigible exploded a thousand feet in the air. There was a heavy fog when the ascension was made, and it is believed that as the dirigible rose above the fog bank the rays of the sun expanded the gas before the pressure could be relieved.

The explosion of the Akron has come as a great shock, but it had been rumored for some time that the ballonets were leaky and that the same was true of the gas envelope. If this were true, it would permit a highly dangerous mixture to form and it may be that this is what really caused the explosion. Most of the opinions expressed blamed a stuck valve or too rapid expansion of the gas to allow the increased pressure to be reduced.

The explosion of the Akron was one rare in the annals of dirigible ballooning, and while many dirigibles have been destroyed, these accidents have been usually due to high winds in landing or in leaving the shed. In almost every case there has been no loss of life. In fact, abroad, dirigible ballooning is looked upon in almost the same light as ordinary means of transportation and the tremendous growth of the business in France and Germany has strengthened the faith of the people in it.

It is to be hoped that the loss of the Akron will have a stimulating effect on the American public rather than a tendency to turn sentiment against dirigible ballooning. Few things are highly successful without attending failures.

The Akron, the experimental dirigible of Melvin Vaniman, exploded early on the morning of July 2nd, while making a flight over Absecon Inlet, and carried to their deaths the captain and members of the crew, in all five men.

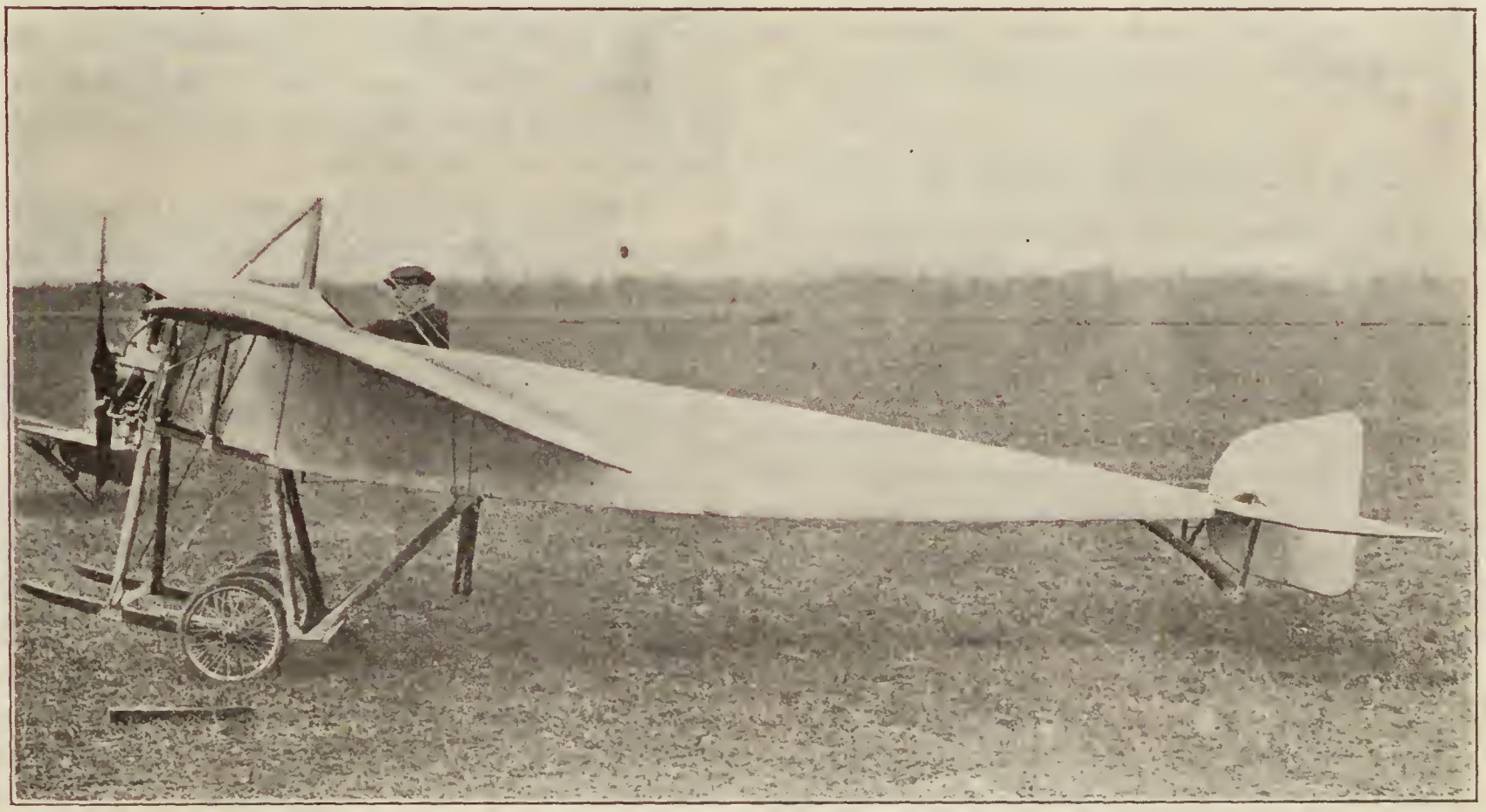
The morning was fine and Melvin Vaniman and his crew were on hand early. Three companies of the Atlantic Fire Department were present to assist in guiding the bag from its head, and at exactly 6.05 A. M. the last rope was "let go" and the Akron started on its fatal flight.

Only one engine was working and the airship traveled scarcely more than ten miles an hour. The Akron turned a slow half mile circle over the Inlet and came back toward the shed. Once more its head was turned seaward, and taking a larger circle and sweeping over the north end of the boardwalk it made toward the open sea. When the dirigible returned from its second circle, Vaniman seemed ready to land, but a yacht was in the way and once more the airship sailed seaward in a still larger circle. Those who watched from the shore beheld the Akron rising as she swept down the wind. The altitude must have been more than one thousand feet. At last the airship turned broadside to the mainland. Then came a puff of smoke from the stern of the dirigible; it trembled and fell apart.

A thundering explosion reverberated in the ears of those on the mainland. They looked and saw what remained of the Akron, the steel framework with remnants of the envelope fluttering in the wind, plunging into the Inlet at a mile-a-minute speed. Some witnesses report that as soon as the explosion occurred one man jumped from the car. At any rate an hour after the explosion the body of Calvin Vaniman came to the surface, badly broken, bruised and burned. The construction of the car of the dirigible was such that it gave but little opportunity for escape, and it was the opinion that when the wreckage was raised from the seven feet of water in which it struck that the bodies would be recovered.

Calvin Vaniman was chief engineer; Fred Elmer, an assistant at the engine; George Bourillion and Walter Gest, members of the crew. These were the men that were with Melvin Vaniman in the cage when the explosion occurred.

Rene Bedel Meets Death in Fog



Bedel in a Morane-Saulnier Monoplane

LOSING his way in an early morning fog, Rene Bedel, one of the most experienced and widely known aviators in all France, collided in his monoplane with telegraph wires at Chalons Camp on July 9th, and was instantly killed.

Bedel was flying at about 80 miles an hour in his Morane-Saulnier monoplane and evidently believed himself at a greater altitude than he was. The monoplane struck the wires and capsized, and the motor fell on the aviator.

Bedel will be remembered as the winner of the Coupe Pommery for 1912 and is famous throughout France for his brilliant ability as an aviator.

VICTOR MORRIS SMITH, JR., well known in amateur aviation circles, fell fifty feet to his death at Ravenswood, near Palo Alto, Cal., on July 13th. Smith first came before the public during the aviation meet at San Diego. He was so encouraged with his success that he left his class in civil engineering at Leland Stanford University to devote all his time to aeronautics.

Smith was nearing the end of a flight from Mountain View to Palo Alto when the aeroplane was caught in a gust of wind fifty feet from the ground and overturned, dashing the aviator to earth.

FLY MAGAZINE

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More Scientific Research

WHILE the death rate abroad has been much greater than it should be, it has remained for a series of fatalities in this country to give the press an opportunity to print a lot of "thriller" copy and display, in some cases, very bad judgment. Unfortunately, the newspapers have an infinitely greater circulation than the magazines devoted exclusively to aeronautics, and this explains to some degree the reason why the attitude of the general public is not favorable to aviation. If those who are so apt in expressing their antagonism would be fair enough to read an occasional journal, edited and compiled by men who may know a little more about aviation than the editorial writers and reporters of daily papers, it might be that they would see aviation in a different light.

With the exception of New York City the majority of the big dailies do not even send competent men to investigate and report aviation events. And after four years of public flight, a newspaper man the other day wrote an article on the flight of a Wright monoplane. Incidentally, if there were more assignments actually covered in person and fewer by the telephone, we might expect something resembling the true facts to be disseminated by the "highly intelligent and truthful" press.

The fact remains, however, that the scientific end of aviation must be more thoroughly developed. There are too many brave and courageous men giving up their lives. For a long time we have deluded ourselves with the belief that in most of the accidents the human factor went wrong. It may have been true, but too many expert aviators have met death to allow us to continue to believe this. The causes of many accidents are pure conjecture.

The time has come when an association is formed "to save the lives of the remaining American flyers."

It has been suggested that many of the aviators are not careful to examine the aeroplanes before flying but the real cause lies deeper than this. What is needed is more scientific investigation. The aeroplane has played to the grandstand and has demonstrated the successful accomplishment of powered flight. Let us now demonstrate that the aeroplane is a necessity, and let us do that by making it safe. Pay more heed to scientific research and less to tradition.

Build for us in this country an aeronautical laboratory, where scientific investigation can be carried on. Here the defects in aeroplanes can be analyzed as they are today abroad. France, Germany, Russia, Italy and Great Britain are developing the science; we are not developing anything but obituary notices.

In the early part of 1912, the Aero Club of Washington, D. C., and the Aero Club of Pennsylvania, expressed to the **AERO CLUB OF AMERICA** their hearty appreciation "of its efforts to secure an adequate endowment for a national aeronautical laboratory." We would like to ask the controlling body of aeronautics in this country just how much has been secured for this foundation to date?

Here is a chance for some of the arm-chair aviators of the Aero Club of America to prove their allegiance to their club and to aviation. If some of these writers instead of devoting several columns a month to telling us of the splendors of their club, which in reality consists of the charity of a few members who are thorough sports, would give their time to matters of real importance, they might justify their membership in an aero club.

Let us seek safety in aviation through the medium of the laboratory, and let us all hasten the day!

From the *New York Sun.*

"Dreadful as the fate of Mr. Vaniman and his companions was, he will have successors in the same enterprise, for if anything in aeronautics has been proved conclusively it is that navigation of the Zeppelin and other German and also the French dirigibles is feasible and reasonably safe. The Zeppelins have carried hundreds of passengers for long distances in Germany and even far out to sea. The Adjutant Reau, the French military dirigible, has kept the air for more than twenty hours and reached an altitude of 7053 feet."

Flights at College Park

FLIGHTS at the Signal Corps Aviation School, at College Park, Md., and Augusta, Ga., for the year ending June 30, 1912, total 1500. The total duration of these flights is 259 hours and 16 minutes.

Flights made by aeroplanes before final acceptance by the Government are not included in this number, nor does it include practice "hops" across the field by beginners.

Mme. Delaroche Wins Appeal

THE Fourth Chamber on Appeal, in France, has granted Mme. Delaroche, one of the first French women aviators, $2,000 as damages in an action brought against the "Office d'Aviation" for breach of contract.

In 1909 Mme. Delaroche made a contract with the above mentioned organization to take part as a member of this company in aviation meets in France or other countries. A few months later Mme. Delaroche summoned the "Office d'Aviation" before the Commercial Tribunal on the charge of breach of contract. She stated that no aeroplane had been placed at her disposal nor had any engagement been procured for her. The company brought a counter charge that Mme. Delaroche had taken place in two meets, one at St. Petersburg and one at Tours without the authorization of the organization of which she was a member.

The Commercial Tribunal non-suited Mme. Delaroche and ordered her to pay the "Office d'Aviation" damages to the extent of $1,600. The company had asked for $6,000. In the decree it was stated that the organization had not agreed to place an aeroplane at her disposal at all times and in addition that it could not be held responsible for not securing engagements.

On the appeal of Mme. Delaroche the Fourth Chamber rendered the decision stated above.

First Aerial Mail in New Jersey

ESTABLISHING the first aerial mail route in New Jersey, Oliver G. Simmons on July 4th flew from South Amboy to Perth Amboy in a Wright hydro-aeroplane fitted with Burgess pontoons. The mail route was 900,006, and Mayor Welsh, of South Amboy, sent a letter of greeting to Acting Mayor Garretson, of Perth Amboy, in the mail pouch that, with its accumulated contents, weighed about 18 pounds. Acting Mayor Garretson also had the honor of carrying the first mail bag ever transported by aeroplane in New Jersey. He rode as a passenger beside Simmons, with the bag in his lap, until the machine descended off Lewis street, and then the aviator took the bag and handed it to Postmaster W. H. Peiffer.

Also about this time Postmaster Pfeiffer, Assistant Postmaster John H. Tyrell, H. R. Wilson and G. V. Evans, in company with a representative of the Perth Amboy *Evening News,* handed to Mayor Garretson a small package, which he gave to Simmons. Upon opening it the aviator was surprised and delighted to find a beautiful diamond studded scarfpin. It was presented in the name of the citizens of Perth Amboy.

The Perth Amboy *Evening News* secured the honor of sending the first representative in that section on a flight. About 3 o'clock in the afternoon, with C. M. Wagner beside him, Simmons started for South Amboy, where they descended off Star Field. On shore an automobile met them and conveyed them to the ball park, where the game was stopped and the automobile containing Simmons was driven to the pitcher's box. There John Coan, in behalf of the South Amboy Business Men's Association, presented Simmons with a handsome silver cup. It bore the inscription, "Presented to Oliver G. Simmons by the Business Men's Association of South Amboy, N. J., in commemoration of the first aerial mail service in the State of New Jersey at South Amboy, N. J., July 4, 1912." Mr. Coan lauded the aviator in a speech full of admiration and enthusiasm, and Mr. Simmons attempted to reply, but being longer on flying than speech-making he thanked the citizens for their kindness and sat down. He was then given three rousing cheers by the "fans," and amid an ovation of cheers was driven to the dock. Here Simmons once more climbed aboard his hydro-biplane and five minutes later was resting lazily on the water before his shed at Seidler's Beach. O. G. Simmons is a member of the Aero Club of Pennsylvania and is a graduate of the Wright School at Dayton, Ohio. He has never taken part in flying contests or in meets for prizes.

ON July 5th, the aviator Ulrich, broke his own record for duration with two passengers and hung up a new mark of 2 hours and 41 minutes.

Miss Harriet Quimby Meets Death at Boston Meet

W. A. P. Willard, Her Passenger, Has Fatal Fall

AN admiring crowd on Harvard Field, at Boston, Mass., on July 1st, saw a monoplane high in the air suddenly point its nose downward, and assuming a perpendicular position, hurl its occupants into Dorchester Bay, a thousand feet below. A few moments later, with life extinct, the bodies of Miss Harriet Quimby and William A. P. Willard were recovered in 4 feet of water. In the opinion of doctors present both were dead before they struck.



Photo by E. Ovington

The Start of the Flight

Miss Quimby, who enjoyed the distinction of being the first woman to fly an aeroplane across the English Channel as well as the first woman to receive an aeroplane pilot's license in America, was returning at the time of the accident from a flight to Boston Light with William A. P. Willard, father of Charles Willard, the well-known aviator, as a passenger. The flight was being made with a passenger in an effort to break the mark made by Grahame-White, and Miss Quimby was getting tremendous speed from her new 70-Gnome motor.

The flight was almost over when the horrified watchers on the field saw the tail of the monoplane point perpendicularly in the air and an instant later sharply outlined against the setting sun the body of Willard shot out, followed almost immediately by Miss Quimby.

It was low tide and the bodies struck about 200 feet from shore in about 4 feet of water. The clothing of both flyers was torn and covered with mud. There were no marks on Miss Quimby, but there was a gash over Willard's eye from which blood was flowing.

Two theories are advanced as the cause of the accident. One is that the steering controls were rendered useless by the catching of a wire and the other is that a sudden gust of wind caused the machine to dive.

The aeroplane, relieved of its weight, turned over and floated down to the water, striking it about 300 feet from where the bodies were picked up. Earle Ovington



Ovington Examining the Wreck

was one of the first to reach the monoplane, and he sets forth his opinion of the accident in the attached letter.

Miss Harriet Quimby was born at Arroyo Grande, California, on May 1, 1884. While yet in her teens she began to write for the San Francisco papers and finally after coming to New York became dramatic critic of *Leslie's Weekly*. In May of 1911, Miss Quimby became a student at the Moisant School at Mineola, L. I., and on August 1, 1911, she qualified for an aeroplane pilot's license.

The most notable achievement of Miss Quimby was her flight across the English Channel on April 16, 1912. She used a 50-Gnome Bleriot in this flight, but brought back with her to this country a passenger-carrying 70-Gnome Bleriot. It was in this machine that she met her death.

A. Leo Stevens, manager for Miss Quimby, expresses the opinion that the accident occurred through Willard leaning forward in his seat to say something to Miss Quimby. He believes that such an action threw the machine out of balance, causing the tail to tilt up. This threw Willard from his seat but Miss Quimby righted the machine for an instant before she, too, followed Willard through the air.

Ovington's Letter

July 3, 1912.

Editor FLY MAGAZINE,
Bulletin Bldg., Philadelphia, Pa.

Dear Sir:

I enclose a newspaper description of the recent terrible accident of Miss Quimby and Mr. Willard at Squantum. As manager of the aviation meeting, I had unusual facilities for making prompt examination of the wreckage and I wish to make the following report in the hope that all monoplane constructors will avoid such a defect in construction as existed in Miss Quimby's Bleriot monoplane.

Referring to the rough sketch which I enclose, which is a plan view of the machine upside down as it rested in the water, I found that one of the two left-hand control wires (all of the Bleriot control wires are in duplicate) had caught over the lower end of the warping lever. Of course, this is a defect in construction, as the rudder wires should either have been put further away from this warping lever, or else been run through fleedes at this point so as to prevent them becoming entangled with it.

The reason this has not happened before in a Bleriot monoplane is because the warping lever, as used in Miss Quimby's machine, was not the conventional Bleriot "cloche" which was a feature of my seventy-horsepower monoplane, and all others I have ever seen. I noticed this departure from conventional Bleriot practice when I examined Miss Quimby's machine before the flight. I have also called this matter to Monsieur Bleriot's attention in a letter under this date.

It is some satisfaction to know definitely the cause of this accident, and I assure you that I hardly think there is a chance of me being mistaken. I was the first one to examine the wreck and this rudder wire was caught over the control lever when I looked at the machine. And from what happened in the air, for I saw the whole accident, I am convinced that this was the difficulty. At any rate, the construction should not have been such that this wire could possibly have been looped over the control lever whether in the air or at any other time. It is too bad that all aeroplane accidents do not leave such a clear record of their cause.

Very truly yours,

EARLE L. OVINGTON.

Havens In National Guard

BECKWITH HAVENS, the brilliant young aviator, has taken the oath of enlistment and his name has been enrolled as a member of the First Company Signal Corps of the National Guard of New York.

Efforts are being made to provide Havens with an aeroplane so that he can use it in the maneuvers next month when the New York and Connecticut State Guards will oppose the regulars in Connecticut.

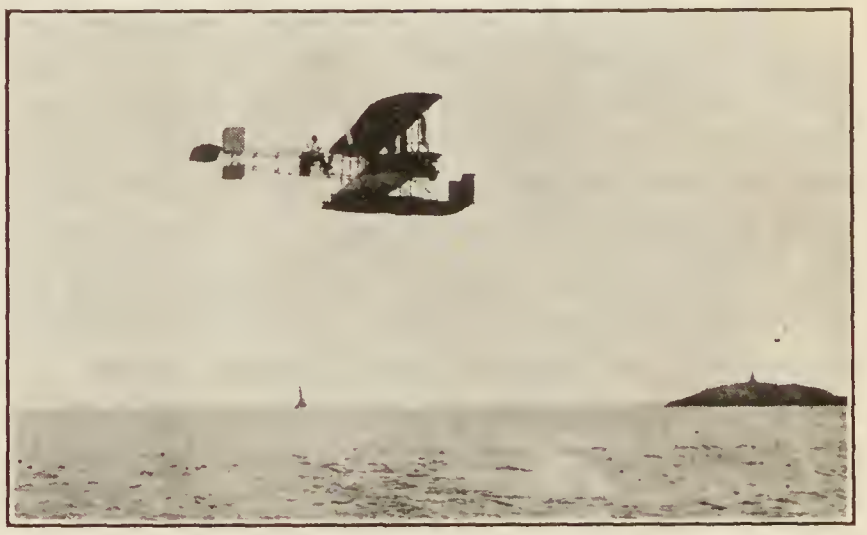
Havens is said to have given up professional flying and will use a hydro-aeroplane during the summer months on Long Island. Regarding the hydro-aeroplane, Havens is quoted as saying, "There is little danger in flying over water provided the operator is competent, and I am certain that this type of aircraft will grow in popularity with yachtsmen and others interested in water sports.

The movement in the New York National Guard is one that could be considered by every State organization of this kind. It would enable these regiments to be as well equipped in times of war as is the regular army. A movement similar to this has had a tremendous influence in France and in Germany, and the location of aeroplanes in all parts of the United States for maneuver purposes would do much to increase the latent interest in aviation.

While it is certain that public sentiment must eventually turn in for aviation, this is a time when it would have great influence. The experimental stage is the one when encouragement is most needed.

No Gould Prize

THE Gould prize for an aeroplane capable of flying with two or more power plants running separately or together, has gone a-begging. Howard W. Gill was the only aviator and machine to qualify and therefore as there could be no contest, the trials did not take place.



Gill in His Double-Engined Burgess Biplane

Almost everyone in aeronautics would do a whole lot to capture $15,000 but with eleven entries, only one was produced ready to fly. If such a prize had been put up for altitude or speed it is safe to say that the whole entry list would have been at the proper place at the appointed hour.

When a man comes along who is willing to give a handsome reward for useful development, nobody seems to want it bad enough to work for it.

However, there is one machine that flies with two power plants and it will be interesting to see just what advantages Gill can show for it.

Farman Aeroplanes in England

FISCHER, one of the brilliant pilots of the Henri Farman hydro-areoplane, is in England demonstrating machines for the British Government.

He has lately made several trials with Admiralty hydro-aeroplanes at Eastchurch, and has received a Henri Farman aeroplane for the British army, at South Farnborough. After trials, which a committee of officers declared quite satisfactory, Fischer went to Southampton, where he made several flights on a hydro-aeroplane, going as far as Southsea and returning to the Hamble in the evening.

He has since received at South Farnborough another biplane, bought by the War Office. Later he returned to Southampton to make trials with a second hydro-aeroplane, which is to be used for coast defence by the Admiralty.

THE German dirigible Siemens-Schuckert was purchased on July 15th by the German army. The Siemens-Schuckert is the largest non-rigid dirigible in the world and has a speed of more than forty-three miles an hour.

An Easy Table of Aeronautic Patents

Steady Increase in Numbers in 1910-1911

By E. J. Stoddard

IN the newly awakened and quite general interest in aerial navigation it is remarkable that quite generally automobile manufacturers are looking toward the aeroplane as a possible line of future development. Therefore, the following table has been prepared to make the data collected by the Government readily accessible. The definitions are those adopted by the patent office. The number of patents in each sub-class is to March 19, 1912. Copies of all patents in print may be obtained for five cents apiece. The way to order copies of all patents in any sub-class is after the following example: The envelope should be addressed "The Commissioner of Patents," Washington, D. C., and the letter should read:

Sir:—

Please send me copies of all U. S. Patents in sub-class 17, Flying Machines, Aeroplane, Propelled, Wing, of class 244, Aeronautics, for which I enclose P. O. Order for 40 cents.

John Smith,
272 Milwaukee Ave.,
Port Huron,
Mich.

There are 8 patents in this sub-class, therefore, 40 cents are enclosed to pay for them at five cents apiece.

Of course the number, title and amount of money should vary according to the sub-class desired. Coin is at sender's risk and postage stamps will not be received.

I am indebted to Parker & Burton, Patent Lawyers, Detroit, Michigan, for data.

Coupon orders are sold by the United States Patent Office. A recent writer in the *American Machinist* has made the very good suggestion that these coupon orders be kept on sale at the various Post Offices. This would indeed be a great convenience.

It is quite interesting to note that in less than a year the number of patents in this class jumped from 745 to 1153. Sub-class 18, probably shows the greatest gain, the number of patents having increased from 8 to 81.

Recently the classification of the aeroplane patents have been changed so that they are now under the jurisdiction of the Examiner having charge of inventions relating to Marine Propulsion and the like.

The German Office have them classified under "Class 77, Sport, Games, Toys, Public Amusements, Aeronautics," and the aeroplane patents constitutes sub-class 77h. The translation of the classification is as follows:

"77h. Aeronautics, Including Kites.

Airships and Free Balloons.

1. Balloons without propelling mechanism (captive balloons and free balloons).
2. Airships (motor balloons, dirigible balloons), inflated airships (without rigid frames), rigid frame airships, anchored airships (balloon roads), passenger kites.
3. Balloon filling (balloon gas and filling apparatus, vacuum balloons, balloons with heated supporting gases, balloons with air bladders).
4. Balloon envelopes and forms (screw balloons, parachutes, balloon valves, and emptying apparatus). (Toy parachutes, 77f, 25.)
5. Kite-shaped flyers (kites, Gr. 14), control mechanism (horizontal, vertical, and balancing rudders), and mechanism for maintaining equilibrium.
6. Helicopters, including those which are anchored, also special arrangements of propellers for flying machines. (Cf. 77f, 1.)
7. Gliders, body-attached flyers, and planes.
8. Various kinds of flying machines, exclusive of gr. 5-7 (undulatory flyers, paddle-wheel flyers).
9. Launching apparatus for flying machines and mechanism for learning how to fly.

Special Propelling Apparatus for Air Vehicles of All Kinds. (Gr. 10-13.)

10. Beating wings for flying apparatus. (Cf. gr. 7 and 11.)
11. Feathering paddle wheels for flying apparatus.
12. Propulsion of flying apparatus by reaction, *e. g.*, by means of compressed air, explosives, or projectiles.
13. Miscellaneous forms of propulsion for flying apparatus, exclusive of gr. 10-12. (Cf. gr. 8.)
14. Kites. (Kite-shaped flyers, fr. 5.)
15. Miscellaneous apparatus for aeronauts, exclusive of gr. 1-14, airship appurtenances, such as rudders, damping surfaces, etc., mechanism for maintaining equilibrium in airships (for flying machines, gr. 5), apparatus for mounting landings and housing airships (for flying machines, gr. 9; hangars, 37f, 8), airship equipment, such as ballast, anchors, dragropes, etc., apparatus for throwing projectiles."

Class 244.—Aeronautics

Class.

Except as hereinafter noted this class contains and is limited to patents for structures adapted for floating or being propelled in the air—as balloons, flying machines, parachutes, kites, etc.—and the necessary appliances for aiding and controlling such flight. 1153 patents in this class.

Sub-Classes.

1. **Miscellaneous.** This sub-class contains patents for devices not otherwise classifiable. 18 patents in this sub-class.

2. **Launching and Landing Devices.** As indicated by the title, this sub-class includes patents for apparatus for launching or projecting and devices for receiving flying machines of any form upon alighting. This sub-class includes devices

for projecting aerial toys—such as helicopters, parachutes, etc., that are freely sustained for a time in the air. 52 patents in this sub-class.

3. **Balloons.** This sub-class includes structures well known as "free balloons." It also includes balloons which without self-contained propelling means may be directed horizontally by movable planes or sails. 51 patents in this sub-class.

4. **Balloons, Captive.** Includes patents for balloons to be held captive by a rope, in some cases fixed to the ground, in others attached to a movable anchor. In some cases the anchor is movable along a rail adapted to the purpose. 14 patents in this sub-class.

5. **Balloons, Propelled.** This sub-class is limited to patents for balloons and accompanying structures propelled and guided by self-contained apparatus. It includes structures in which the buoyant power of the balloon is sufficient to overcome only a portion of the weight of the structure. 27 patents in this sub-class.

6. **Balloons, Propelled, Screw.** This sub-class includes patents for propelled balloons driven by a screw. 142 patents in this sub-class.

7. **Balloons, Propelled, Screw, Helicopter.** Here the only or the predominant propelling means is a lifting screw or helicopter. 21 patents in this sub-class.

8. **Balloons, Propelled, Paddle-Wheel.** This sub-class includes patents for propelled balloons in which the only or predominant propelling means is a paddle-wheel. 27 patents in this sub-class.

9. **Balloons, Propelled, Wing.** Here the propulsion is accomplished by means of beating wings. 28 patents in this sub-class.

10. **Balloons, Propelled, Fluid.** This sub-class includes all patents for propelled balloons driven by means of the reaction of a jet of air or other gas upon the surrounding air. This group includes devices for utilizing pneumatic jets actuated by paddle-wheels, screws, and centrifugal or other pumps located somewhere in an inclosed tube, channel, or way between the intake and the emerging orifice. It also includes devices for utilizing the propulsive force of the explosion of charges of gas, torpedoes, or other explosive matter. All jet propellers that involve steering means combined with the propelling means are also included. 38 patents in this sub-class.

11. **Flying Machines.** This is a miscellaneous sub-class including patents for structures without gas fields, adapted to fly freely above the earth and sustained by the reactive force of the air. 46 patents in this sub-class.

12. **Flying Machines, Aeroplane.** This sub-class includes patents for structures adapted to fly freely above the earth, sustained by the reaction of the air on one or more planes and carrying no means for propulsion. 81 patents in this sub-class.

13. **Flying Machines, Aeroplane, Propelled.** This sub-class includes patents for structures flying freely above the earth, sustained by the reaction of the air on one or more planes, and carrying means for propulsion. 18 patents in this sub-class.

14. **Flying Machines, Aeroplane, Propelled, Screw.** Here the flying machine is driven by a screw propeller. 171 patents in this sub-class.

15. **Flying Machines, Aeroplane, Propelled, Screw, Helicopter.** Here the propelling means is the helicopter or lifting screw. 39 patents in this sub-class.

16. **Flying Machines, Aeroplane, Propelled, Paddle-Wheel.** In this sub-class the propelling means for the aeroplane is a paddle-wheel. 14 patents in this sub-class.

17. **Flying Machines, Aeroplane, Propelled, Wing.** Here the structure is propelled by beating wings. 8 patents in this sub-class.

18. **Flying Machines, Aeroplane, Propelled, Fluid.** This sub-class includes all patents for flying machine structures propelled by means of the reaction of a jet of air or other gas upon the surrounding air. It includes devices for utilizing pneumatic jets actuated by screws, paddle-wheels, and centrifugal or other pumps located somewhere in an inclosed tube, channel, or way between the intake and emerging orifice. explosions of charges of gas or of torpedoes or other explosive bodies. All jet propellers that involve steering means combined with the propelling means are here included. 81 patents in this sub-class.

19. **Flying Machines, Helicopters.** This sub-class is limited to patents for flying machines in which the lifting power is developed solely by one or more screw propellers with verticle or approximately verticle axes. In some cases propellers for driving in a horizontal direction are shown. 71 patents in this sub-class.

20. **Flying Machines, Wing.** This sub-class is limited to flying machines in which the means of sustentation and propulsion consists of beating wings. 38 patents in this sub-class.

21. **Parachutes.** This sub-class includes the well known structures indicated by the title, as well as other forms of planes which, when descending, oppose greater resistence to the air. 36 patents in this sub-class.

22. **Kites.** This sub-class is limited to structures of the well known form indicated by the title—viz., light frames covered with paper or other fabric, adapted to be supported in the air by the wind when held by a string. 43 patents in this sub-class.

23. **Kites, Multiple Plane.** This sub-class includes kites with two or more lifting surfaces presented to the air currents. 20 patents in this sub-class.

24. **Kites, Accessories.** This sub-class includes devices not a part of the kite structure to be operated in connection with kites. 11 patents in this sub-class.

25. **Propellers.** This sub-class includes propellers per se not otherwise classifiable, as well as means and methods of driving, the arrangement, hanging connections or fitting, combinations with steering mechanism, and combinations by which the propellers may be used in steering. 30 patents in this sub-class.

26. **Propellers, Screw.** This sub-class includes all types of screw propellers applied to structures adapted to aerial navigation and involving their form and structure. 30 patents in this sub-class.

27. **Propellers, Wing.** This sub-class includes all types of wing propellers, oscillating or rotary, applied to structures adapted to aerial navigation and involving their form and structure. 8 patents in this sub-class.

28. **Propellers, Paddle-Wheel.** This sub-class includes patents for paddle-wheel propellers applied to structures adapted to aerial navigation and involving their form and structure. 16 patents in this sub-class.

29. **Steering Mechanism.** This sub-class includes patents for rudders or combinations of rudders with other planes by means of which aerial structures are directed. 46 patents in this sub-class.

30. **Cars.** This sub-class contains patents for cars or cabins suspended from or carried by balloons or other structures adapted for aerial navigation and designed to contain human beings or material of any kind. 2 patents in this sub-class.

31. **Details.** This sub-class contains patents for the elementary parts of structures or instruments used in aeronautics. 25 patents in this sub-class.



A DEPARTMENT FOR ALL INTERESTED IN MODELS AND MODEL FLYING

Conducted by the Junior Editor **Model Editor, Philip T. McCutchen**

A New Hydro Model

By Philip McCutchen

THE average experimenter has his own pet ideas regarding the design of one or more models.

The accompanying drawing shows a model I have designed for the criticism of the junior club members.

I would like to receive letters from the readers stating what the principal faults and good points of the machine are, and the reasons why these points are apparent.

It looks as though I wished to start an argument, but that is not the case. The object is to bring the club members and the readers of the magazine closer together by an exchange of views.

There will be as many letters published as space can be found for.

Address all communications to the Model Editor.

The Aero Pub. Co.,
Bulletin Bldg.,
Phila., Pa.

Answers to Junior Club Queries.

How to find the pitch of a model propeller.

A diagram of this process is given in the July, 1911, issue of FLY.

BALBOA, CAL.

Dear Sir:

I am building a three-foot Bleriot monoplane, and it weighs about twelve ounces. How large a propeller will be necessary to fly this model?

How far will it fly starting from the ground?

I expect to use rubber bands three feet long. How many will be necessary to give me the required number of revolutions to make the model fly?

L. H. B.

1. A 12-inch propeller will be required.
2. Will fly about 150 to 200 ft. starting from ground.
3. Fifty feet of 1/16-inch square rubber required.

E. P. L., Newark, N. J.

A model with a spread of four feet, measuring from tip to tip of the main planes, would be excellent for your model motor.

S. K. W., Kalamazoo, Mich.

Pontoons may be made of thin cardboard covered with silk. The outside should receive several coats of varnish to render it watertight.

Licensed Aviators Suspended

THE controlling body of aeronautics in this country has recently seen fit to suspend until December 31, 1912, the international aeroplane pilot licenses of Lincoln Beachey, No. 27; Glenn L. Martin, No. 56; Charles K. Hamilton, No. 12; Philip W. Page, No. 68; Farman T. Fish, No. 85; Paul Peck, No. 57; Arch Freeman, No. 84 and F. J. Terrill, No. 108, for having participated in an unsanctioned meet.

A very peculiar point about the matter is that the Aero Club has granted these licenses as evidences of the ability of the respective aviators to fly aeroplanes. Now, because these men have displeased the "powers that he," they seek to wield a big stick through the matter of licenses. This is absurd, for suspending the licenses merely prevents the participation of the offenders in licensed meets. At the same time it officially makes void the certificate of ability to operate an aeroplane.

Let the Federal Government control aeroplane licenses. Then if the aviators see fit to tie up with a sporting body that seeks to control exhibitions and racing, all right.

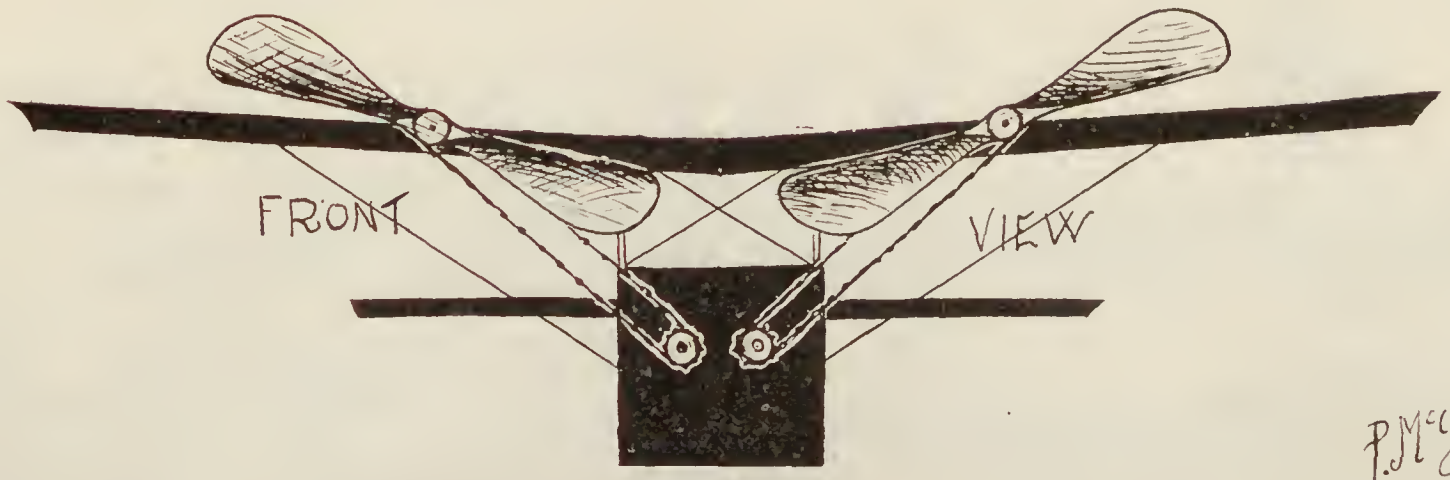
Flight With An "Aviette"

GABRIEL POULAIN, on July 5th, won the $200 prize for the first flight made by human power over a distance of one metre at a height of four inches above the ground.

In the presence of the Aero Club Commission at Chantillion, France, Poulain succeeded in clearing on his aviette two strings placed 3 feet 3 inches apart and 4 inches from the ground. Poulain repeated this feat twice, covering a distance of 11 feet 9 inches on the first attempt and the second time 10 feet 9 inches.



SIDE VIEW.



P.J. McCotchen
13.

NEW HYDRO MODEL

French Military Aviation

INTERESTING details concerning the progress of French military aviation and the efforts made to eliminate accidents to aeroplanes were made in the Chamber of Deputies in Paris, by Colonel Hirschauer, chief of the Military Aviation Department, during the debate on the Budget of the Ministry of War.

Colonel Hirschauer stated that during the first quarter of 1912 the number of accidents had been practically the same as during the second quarter last year, but both the number of aviators and the aggregate distance covered had doubled. During the first three months of the present year French military aviators flew a total distance of 650,000 kilometres.

Great progress had been made in the solidity of aeroplanes, and the construction of a large open-air laboratory at Pau for the testing of high-speed machines was under consideration. It had been decided, said Colonel Hirschauer, that every aeroplane should be examined before starting on a lengthy flight, and if it showed any signs of weakness it would be set aside for repairs. Every motor was now thoroughly tested after fifty or sixty hours' flight. The older ones were reserved for aerodromes and the new ones for long journeys.

Experiments with stabilisators were being made at Villacoublay, and any officer who asked for one to be fitted to his machine was provided with one. A prize of 400,000 fr. was offered to the inventor of an apparatus rendering aeroplanes perfectly stable.

Colonel Hirschauer concluded by stating, amid cheers, that 1,800 requests to be incorporated in the Military Aviation Corps had been received.

Jewish Model Club

SOMETIME ago one of the readers of the Model Department sent in for the address of the Jewish Model Aero Club. We learn that this organization is under the auspices of the Federation of Jewish Organizations and communications for the club should be addressed to Samuel Wein, 51 E. 98th street, New York City.

The club is said to have a number of active workers who are continually building and flying models. Among the active ones are William Lukashavshy, Samuel Borokov, Louis Winter, Michael Werbow and Samuel Wein.

Questions and Answers

A Department for All Aero Students

Conducted by A. Roe Bugg

ROCHESTER, N. Y.

Dear Sir:

Please advise me if any one can be prevented from making and selling models of patented aeroplanes, such as the Curtiss, Wright and Bleriot?

Yours,
E. J. B.

It is being done continually throughout the country, and thus far there has been no effort made to prevent it.

NEW YORK, N. Y.

Dear Sir:

Are there any contracts open at the present time for giving exhibition flights in dirigible balloons?

Yours very truly,
W. S.

There is probably a number of contracts that could be secured with amusement parks, fairs, exhibitions and the like. However, they are not advertising prizes or prices. Frank Goodale, who is flying his dirigible at Palisades Park, near New York City, should be able to give you the information you desire.

VANCOUVER, B. C.

Dear Sir:

What is the average amount of slip in an aeroplane propeller?

Faithfully yours,
J. V.

This is a very difficult question to answer, as the slip varies all the way from fifteen per cent. to more than fifty. I would say that the average slip would be between thirty and forty per cent.

FAIRFIELD, CONN.

Dear Sir:

Has Magnalium been much used in aeronautical engineering? What are its qualifications?

Very truly,
P. K. H.

Magnalium is extensively used in aeronautical engineering and also in aeroplane motors. It weighs less than aluminum, is easily cast, forged, rolled and drawn, and resists corrosion about as well as aluminum.

BOWLING GREEN, KY.

Dear Sir:

Kindly recommend several good books that cover the subject in an authoritative manner.

L. J. B.

"Practical Aeronautics," by Charles B. Hayward; "Vehicles of the Air," by Victor Lougheed, and "The Art of Aviation," by R. W. A. Brewer, are all good books and cover the subject in a thorough manner.

FORT WAYNE, IND.

Dear Sir:

Will you print briefly a summary of the conditions in the French competition for military aeroplanes?

Yours truly,
O. L. N.

Seven conditions were required:

1. Aeroplanes must be of French construction, including motor.

2. To make 300 kilometers in a closed circuit without stopping.

3. To be able to carry on this flight 300 kilograms of actual weight, *not* including consumable material (oil, gasoline, water, etc.) required to cover the distance.

4. To have three seats.

5. To have an actual speed of at least 60 kilometers an hour.

6. To be able to land on ploughed ground, clover, pasture land, stubble, and to leave again afterwards.

7. To be easily transportable by road, rail, etc., and easily and rapidly assembled and adjusted.

In addition, as desirable qualities: Control gear to be in duplicate; to be able to rise by means provided on board; to have before the observer the largest possible field.

1 kilometer=0.62137 miles.
1 kilogram=2.20462 pounds.

WASHINGTON, D. C.

Dear Sir:

In preparing a table for the purpose of comparing aeroplanes, I am at a loss as to how to compare their general efficiency. Could you give me a suggestion?

Very truly yours,
L. DEV. H.

Theoretically, the best indication of the efficiency of an aeroplane is the weight carried per unit of power. This quantity is termed "the coefficient of power." Biplanes carry a greater average weight per unit of power than monoplanes. It is interesting to note the effect of the increased angle of incidence upon the horsepower required for sustentation.

PERTH AMBOY, N. J.

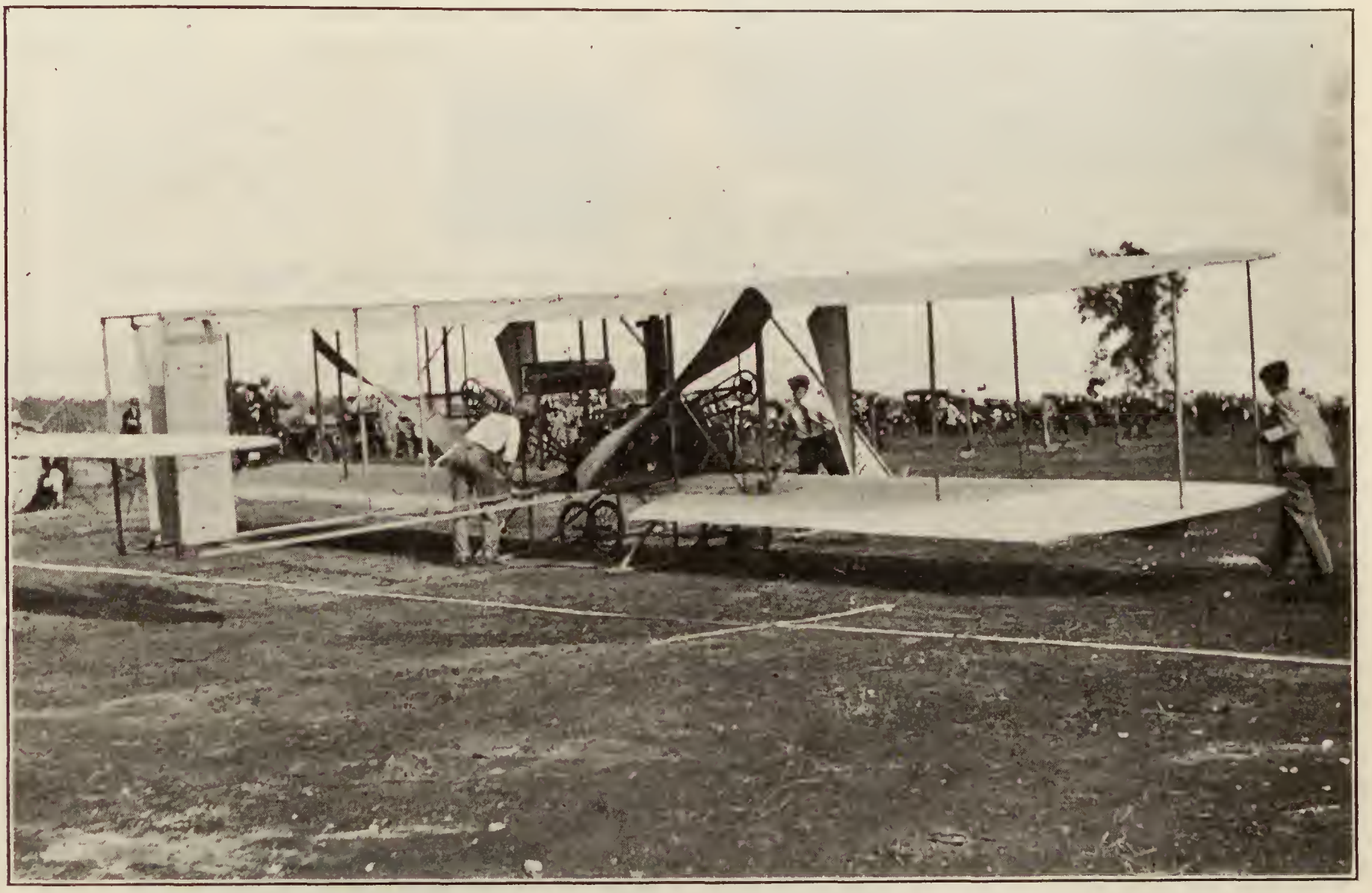
Dear Sir:

Has the cause of the accident to the "Akron" ever been satisfactorily explained? Do you not believe that it was due to weakness in the texture of the balloon, caused by Vaniman's method of manufacturing hydrogen?

L. V. B.

The Goodyear Tire and Rubber Company have been investigating the wreck and expect to publish an authoritative statement in a few days. The reason mentioned by you is held by many to be the real cause, but as it is denied by the makers of the balloon, we are awaiting their explanation.

TRADE TOPICS



The Burgess Biplane Equipped With a Sturtevant Motor

New Hydro-Aeroplane Station

The Wright Company have under course of construction their Eastern Hydro-aeroplane station and school on the water front property of the Glenwood Country Club, at Glen Head, L. I. (Hempstead Bay), a location admirably adapted for the water flying craft being, land-locked on three sides and a most popular rendezvous for Connecticut and New York yachtsmen.

The Glenwood Country Club membership number many Aero Club of America members, in addition to others who are enthusiastic in the promoting of hydro-aeroplaning and who believe that hundreds will become air boatmen when the possibilities of water flying are properly demonstrated.

Water flying is soon to take its proper place among healthy sports, now that proper facilities are offered for schooling convenient to New York City, and will attract a class of sportsmen who hitherto regarded the hydro-aeroplane as purely a machine for war purposes.

The Wright Company announces this new station will be in full operation on or before August 1st. Many interesting flights may be anticipated this summer at Glen Head, L. I.. which is very accessable by L. I. R. R., automobile, motor boat, and convenient for Connecticut motormen using the Rye-Sea Cliff Ferry, which adjoins the Glenwood Country Club property.

Sturtevant Motor in Flight

During the Third Annual Boston Aviation Meet, held at the Harvard Aviation Field, at Squantum, from June 29th to July 6th, a Sturtevant Aeronautical Motor was used by Phillips Ward Page in a Burgess biplane. Mr. Page used a four-cylinder, 40 H. P. Sturtevant motor, and experienced no motor trouble whatsoever throughout the entire week. In all, about fifteen flights were made during the meet without any adjustment to the motor. In Mr. Page's first flight he flew to a height of 5000 feet, and on coming down he said that the motor had worked perfectly.

Sloane School Busy

During the first month of its existence, the Sloane School of Aviation, at Hempstead Plains, enrolled seven pupils. One of these, J. S. Herbert, graduated in three weeks after he began to take his lessons on the Deperdussin monoplane. The other pupils are: W. Leonard Bonney, one of the famous Wright flyers; J. G. Gilpatric, a very clever sixteen-year-old boy; T. E. Steptoe, Guy Morton, W. E. Roberts and W. I. Twombly. The price of $300 for the course proved exceedingly attractive. Unlike any other school, no charge whatever is made for the use of the machine when the pupil flies for his license. Nor is it required that the pupil put up the breakage guarantee in cash.

Kemp Factory Busy

The management of the Gray Eagle motor factory reports encouraging conditions and that the prospects are very encouraging. They state that there is a demand for the 6-cylinder type for exhibition work.

It is claimed by the Kemp factory that Gray Eagle motors furnish the power for from one to four planes in each of over two-thirds of the States.

Many aviators favor an air-cooled motor and through the co-operation of users of the Gray Eagle motor additional orders have come to the factory.

Russia After Maximotors

Representatives of the Russian and Roumanian governments have been negotiating with Maximotor makers for the equipment of army planes with Maximotors. A 6-cylinder Military type of 105 H. P. ordered by the Roumanians is well under way.

The new Military Maximotors, with their equipment of clutch, combination auxiliary exhaust and muffler, double ignition and self-starter, are arousing a great deal of attention among army officials.

Aviation engines are not manufactured in Russia, or the Balkan states—Bulgaria, Servia and Roumania, though most of them have more army aeroplanes than the United States. Representatives of the Balkan powers state that they have for a long time been looking for reasonably priced four-cycle, water-cooled engines at least as reliable as the Gnome. The many types of European engines which their military aviators have used are not altogether satisfactory, they assert.

Prizes For Model Flights

To encourage model flying in this country, the Co-operative Aero Association of Muncie, Indiana, is offering to users of the Cellulose Turbine a gold-lined silver cup which stands about one foot high. The cup will be awarded on points. The points to be figured on the aggregate number of feet covered in ten flights.

This contest will be open until December 31, 1912, and thus gives an opportunity for all interested in model flying to become acquainted with the requirements of the contests.

All information regarding the contest can be secured from the Co-operative Aero Association, Muncie, Ind.

Cline Makes Long Flight

William F. Cline, flying in a Welles hydroplane, broke what he claims is the world's record for a continuous flight in a hydroplane, at Cayuga Lake Park, near Rochester, N. Y., recently. He says that he was able to make his flight of one hour, fifty-eight and three-quarter minutes, because he used a Charavay propeller. This is the propeller produced by the Sloane Aeroplane Company. It holds seventy per cent. of the American records. It is now in use by ninety per cent. of the aviators in this country. It has taxed the capacity of the factory to keep up the record for prompt delivery.

Lacroix Has Aviation Department

The Aeroplane Motors & Equipment Company, of 1780 Broadway, have been, since July 8th, connected to the Paul Lacroix Automobile Company, Inc., of which concern they will be the Aviation Department. They are importing Gnome, Renault and Anzani motors, which motors they will carry in stock. They are, outside of these three standard makes of motors, sole American agents for the Salmson (Canton-Unne type), Chenu, motors; also for the Morane-Saulnier monoplane, which machine in the latest circuit abroad, the Circuit, Anjou, made the fastest time. They are also the sole American agents for the Train monoplane, which obtained such large publicity in the European Circuit. They are importing all the standard aeronautical supplies, such as Astral Varnish, for which product they are the sole American agents, aviation helmets, etc.

Inter-City Flights With Maximotor

The noted "Hadley-Blood" biplane, formerly powered with a 2-cycle engine, has been purchased by S. F. Beckwith, of Mineola. This plane has been transformed into a tractor by Edward Crabtree. A great deal of credit is given Mr. Crabtree for the original work he has put on the remodeled plane. For a number of years he has been a close student of aeronautics from the scientific side. He has done considerable research work in bird flight, bird anatomy, and especially the mechanism and stream line form of bird wings from photographs and sections prepared in wax.

Mr. Beckwith, who has obtained his license on the Wright plane with Geo. Beatty, is to do the preliminary flying. A number of flights between towns and cities are then to be carried out by Mr. Crabtree with Model *F*, 75 H. P. Maximotor.

Aviator Wants Accident Insurance

ACCORDING to the New York "Sun" the first suit of an aviator against an accident insurance company to collect for injuries has been filed in the Supreme Court by Albert Newton Ridgely against the Aetna Insurance Company.

Ridgely, who also is a writer on financial subjects, says that he took out his policy on June 12, 1911. By it he was entitled to $150 a week for disability. He says that on July 12, 1911, he was severely injured in a fall from a biplane which he was "using with great care for recreation and learning to fly." He claims $2,571, which the insurance company refuses to pay.

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Etc., etc.



And the well-known Wright and Curtiss Aviators use Goodyear equipment.

In fact, practically *all* of America's veteran aviators use Goodyear Fabric.

Needless to say, these men would not use Goodyear Fabric unless it was thoroughly dependable. But they know by experience that Goodyear Fabric won't rot, mildew, tear or get loose.

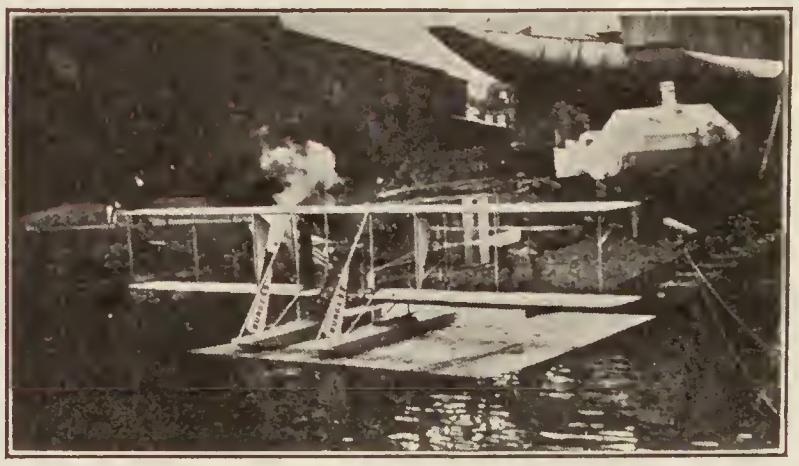
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Drop us a postal today and receive a copy of our new Catalog of Aeronautic Supplies—Aeroplane Fabric, Aeroplane Tires, Aeroplane Shock Absorbers; and Balloons of every conceivable type and size.

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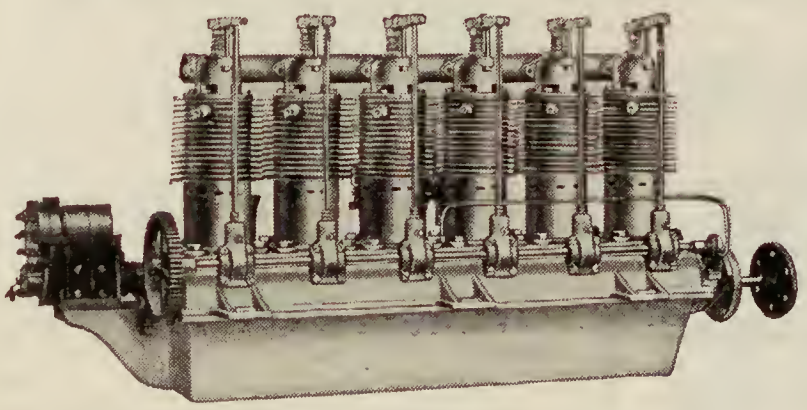
In the 1912 models we offer no untried experimental devices, simply refinements in construction, additional strength and durability. Both the hydro-aeroplane and aeroplane may be started by the operator while in the machine. The following aviators, when free to choose their own aeroplanes, selected a Burgess type:

C. Grahame-White	H. N. Atwood	T. O. M. Sopwith
C. K. Hamilton	W. R. Brookins	H. W. Gill
Lieut. T. D. Milling	Phillips W. Page	U. S. Army
Clifford L. Webster	U. S. Navy (hydroplane)	

Training on Burgess Hydro-aeroplane equipped with duplicate control, under the instruction of licensed aviators only, may be secured during February and March at Daytona (aeroplane), Ormond, (hydro-aeroplane,) Fla. or Marblehead, Mass., (weather permitting).

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The Co-Operative Aero Association
MUNCIE, INDIANA

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NEW AEROPLANE PROPELLER, that develops 20 lbs. per H. P. 12 H. P. 200 lbs. thrust. 20 H. P. 315 lbs. thrust. 30 H. P. 415 lbs. thrust. Stronger, lighter, neater and representing the greatest efficiency with less noise. Fly eighty miles per hour with 25 H. P. Positively the best in the world. Write us. Double Stamp Propeller Company, 501-503 Upper Third Street, Evansville, Ind.

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EXCEPTIONAL Good opportunity for promoter or party with capital to develop United States, French, British, Canadian and other foreign patents of a stability device (without warping wings) for aeroplanes which guarantee: non-collapsibility, increased lifting power, staying in the air when stopping motor, and stronger construction of machine. Inventor and owner of patents cannot give proper time to development of invention, but may sell above patent rights. Also plans and model of new type dirigible airship to responsible party. Address: M. Kalaba, 29 College Place, New Rochelle, N. Y.

CAPITAL Wanted to form a company to build a lately patented airship. Will almost rise straight from the ground. Its equilibrium will be practically perfect. It provides for a safe descent, slow and long enough to pick out the last landing place. With engine out of order, etc., will float on and rise out of water, will be practical safe airship of the future. Address: Frank Vohs, 4944 Natural Bridge Road, St. Louis, Mo.

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FOR SALE—Maximotor Aeroplane Motor, 1912 Model F, 75 H. P. Six cylinders, four cycle, vertical, water cooled, double-spark system; weight 300 lbs. Also new radiator and propeller. This motor is new—never been used—just tested, and was purchased for use in an extra large, two-passenger biplane, which was never completed. Best offer takes it. Guaranteed by the factory. For particulars, write "Originality," 317 Erue Street, Canton, Ohio.

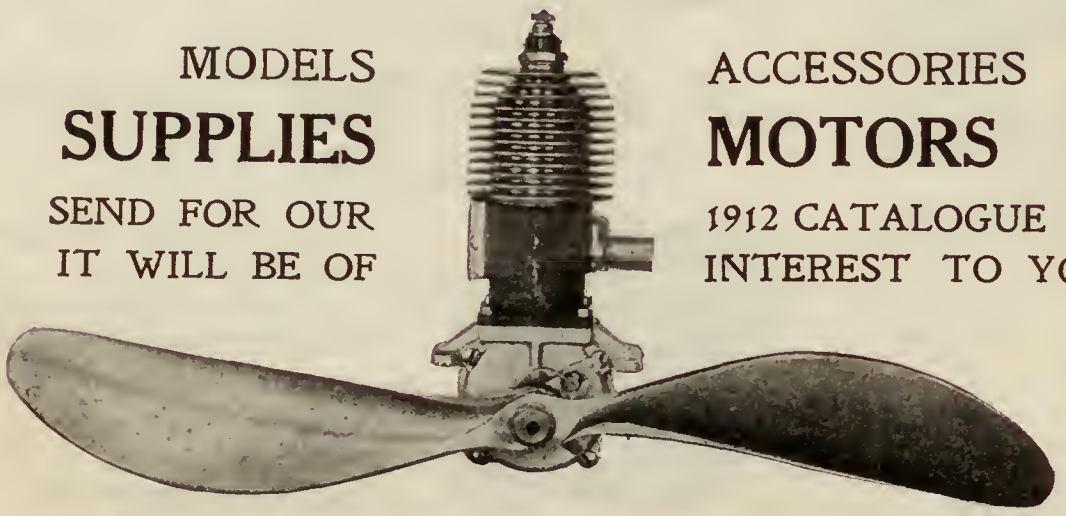
JUST RECEIVED PATENT on safety device for aeroplane. Machine cannot fall, because in falling our device utilizes the resistance of the air to gencrate motive power. Works independent of the motor and cannot fail. A little extra weight, but will strengthen construction and save life. Acts on the principle of water-wheel and does not interfere with operation of machine. For particulars address Mrs. J. R. Sherrod, 281 Monadnock Building, San Francisco, California.

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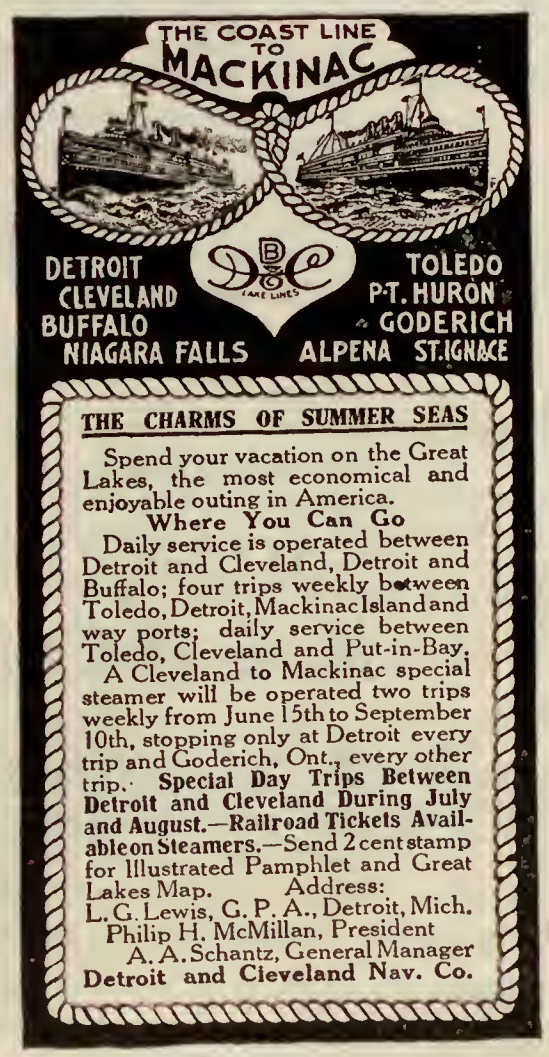
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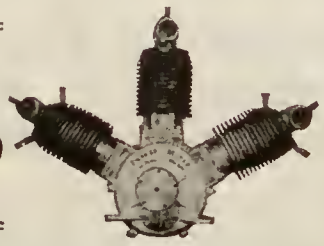
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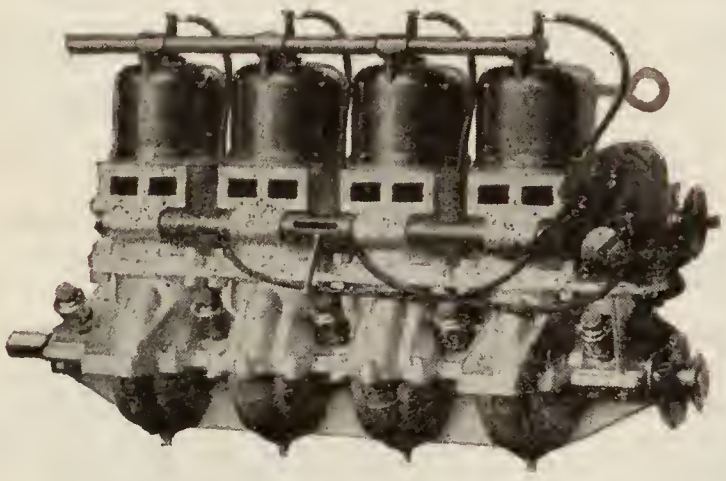
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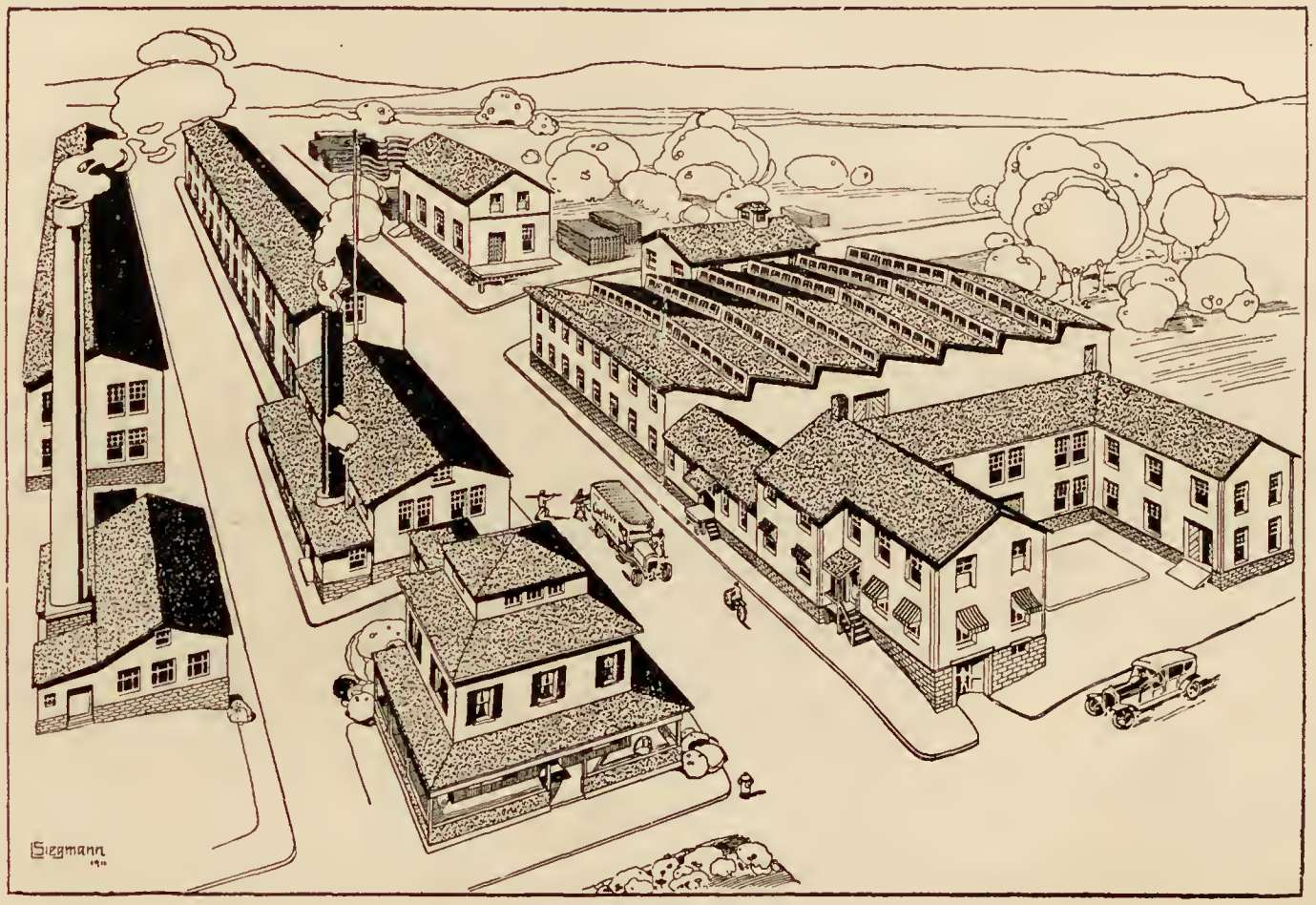
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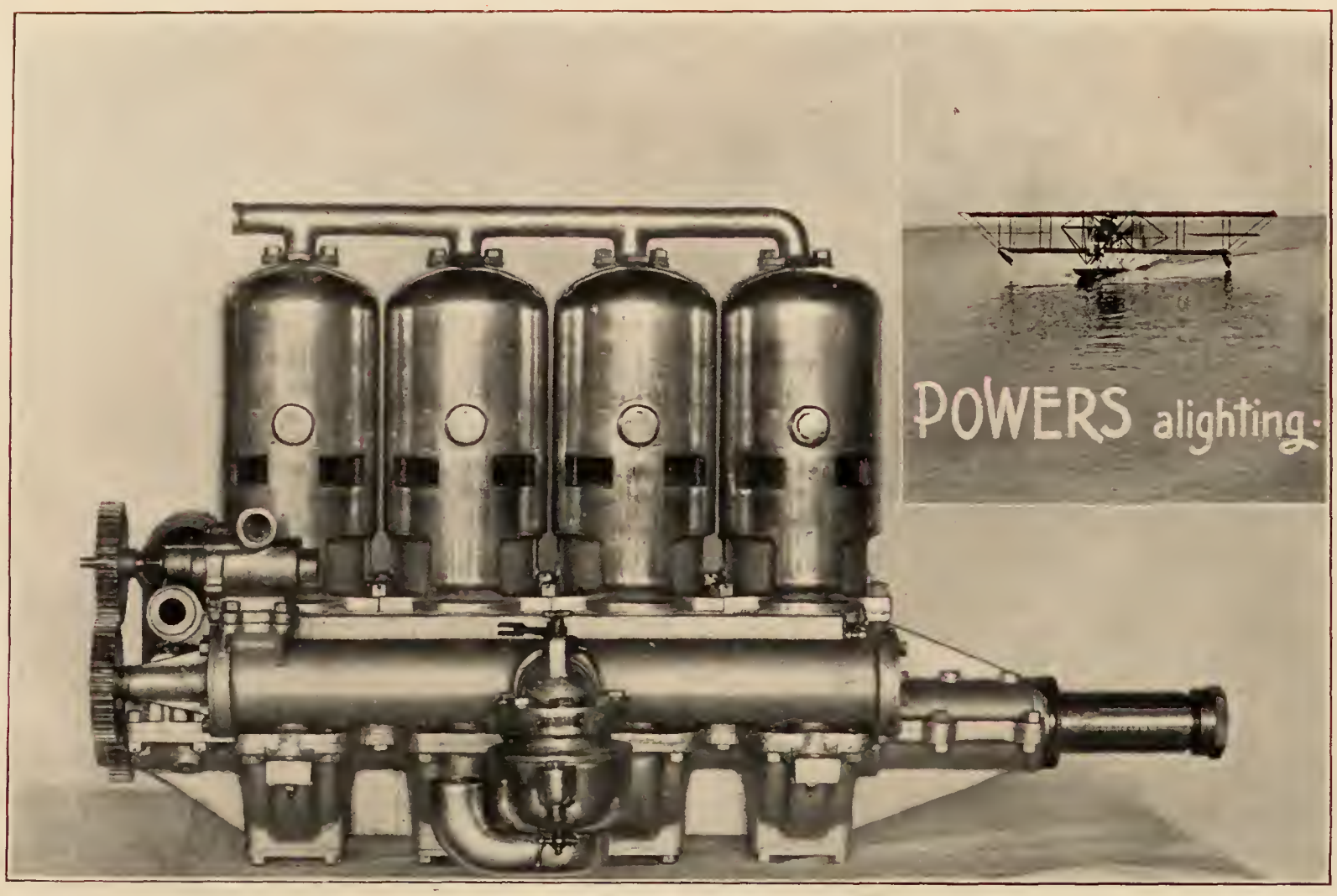
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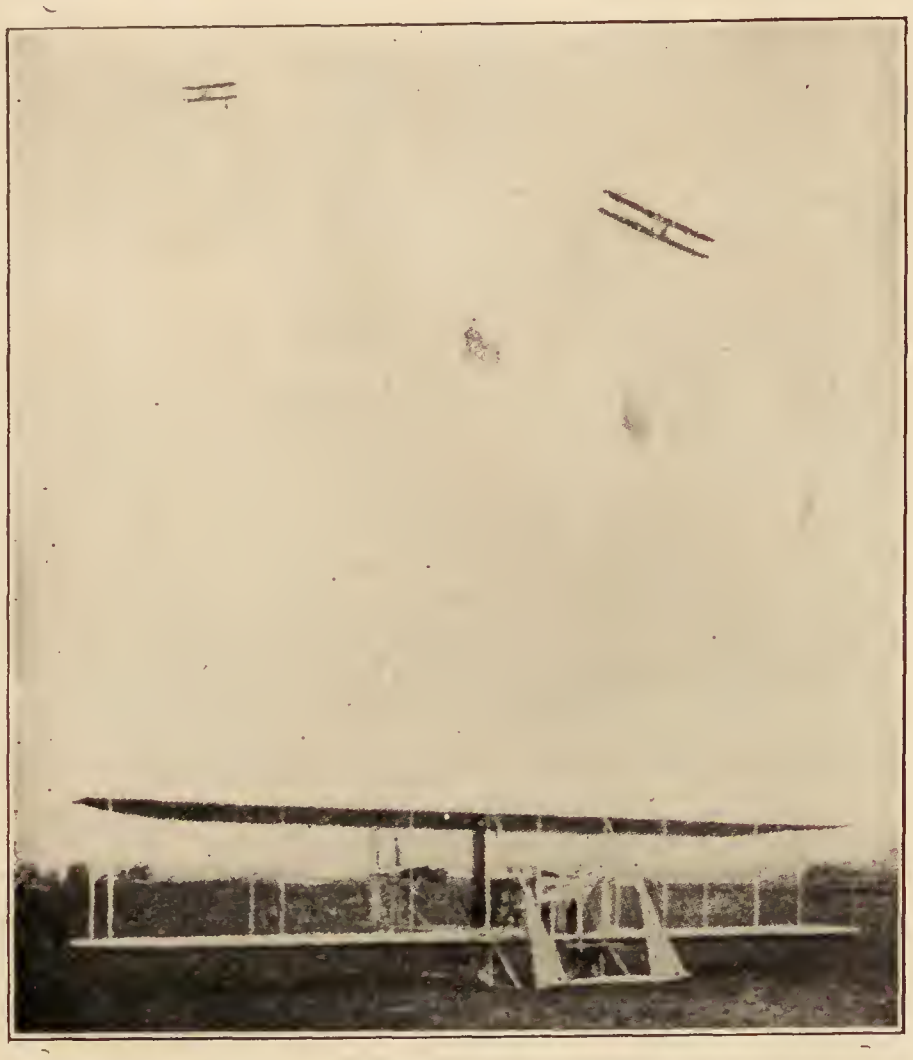
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Fly Magazine

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Former Lieutenant Scott Wins Two Michelin Prizes

American Scores High With Bomb-Dropping Device

LIKE many others of our inventors, former Lieutenant Riley E. Scott had to take his bomb-dropping device abroad to receive proper recognition. While in France he has been competing in the Michelin bomb-dropping contest, and he not only won the Michelin prize of $5000 for the best score, but on August 15 he won an additional prize of $10,000 for dropping the largest number of bombs, weighing fifteen pounds apiece, upon the target.

In the final competition for the $5000 prize for the best score, which took place on Sunday, August 11, at Mourmelon, Lieutenant Scott, in an Astra-Wright biplane piloted by Gaubert, dropped eight bombs within the target. The target was the size of a dirigible balloon shed, and Lieutenant Scott made all his tries from a height of 2600 to 2700 feet. These shots were made during a flight of fifty minutes.

The weather conditions greatly interfered with the accuracy of the aim, but under more favorable atmospheric conditions, the scores of Lieutenant Scott and his pilot have been better than their competitors.

Lieutenant Renault was hampered by the clouds and could only make his attempt from a height of about 1000 feet. He succeeded in getting twelve of his fifteen bombs within the target.

Lieutenant Bousquit made his try from an altitude of about 3000 feet and dropped all fifteen of his bombs at once, but only five landed within the target.

On August 15, Lieutenant Scott won another American victory, and the $10,000 Michelin prize, for dropping 15-pound bombs into a space sixty feet in diameter.

Flying again with Gaubert as pilot, Lieutenant Scott placed eleven projectiles in the space and won the prize. Lieutenant Varcin, of the French Army, was second with ten bombs. Numerous others of the French Army officers competed.

The scores obtained in previous attempts were in favor of Lieutenant Scott, with 11 hits out of 15 attempts, against 10 hits by Lieutenant Varcin. Lieutenant Scott, with M. Gaubert, was able to improve on this score, obtaining 12 hits out of 15, and, subject to the confirmation of the French Aero Club, they become the winners.

The victory is one for which Lieutenant Scott has worked hard, and he deserves all the credit for the accomplishment. The device which he has been using abroad was demonstrated in this country at College Park, Md., and was described in the December, 1911, issue of FLY.

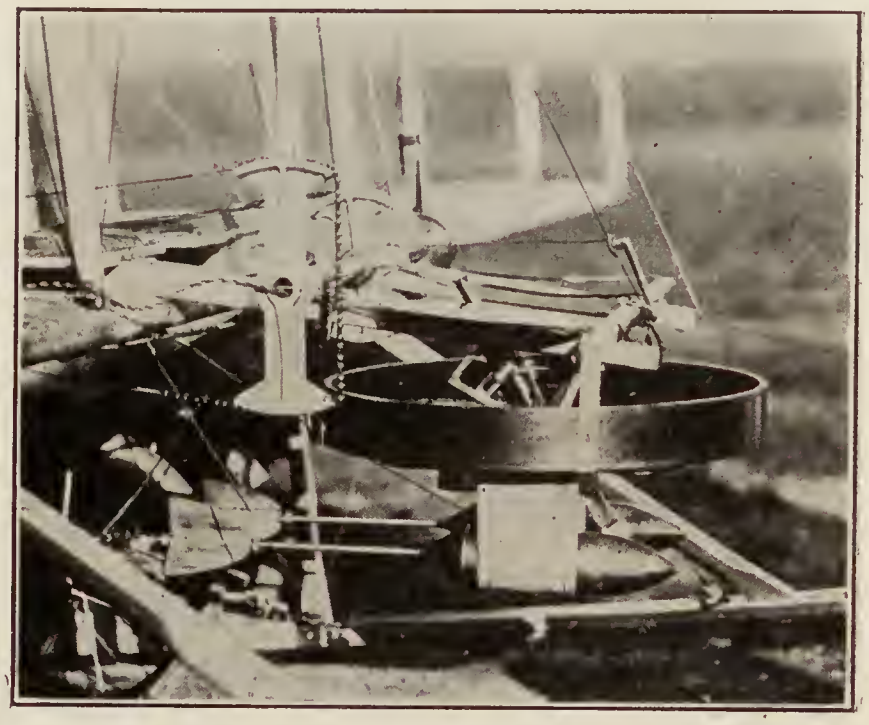


Photo by G. V. Buck, Wash., D. C.
Side View of the Bomb-Carrying Device

Lieutenant Scott has been abroad since November, and has devoted almost his entire time to the perfecting of this instrument, which he believes will make accurate bomb-dropping from an aeroplane practical.

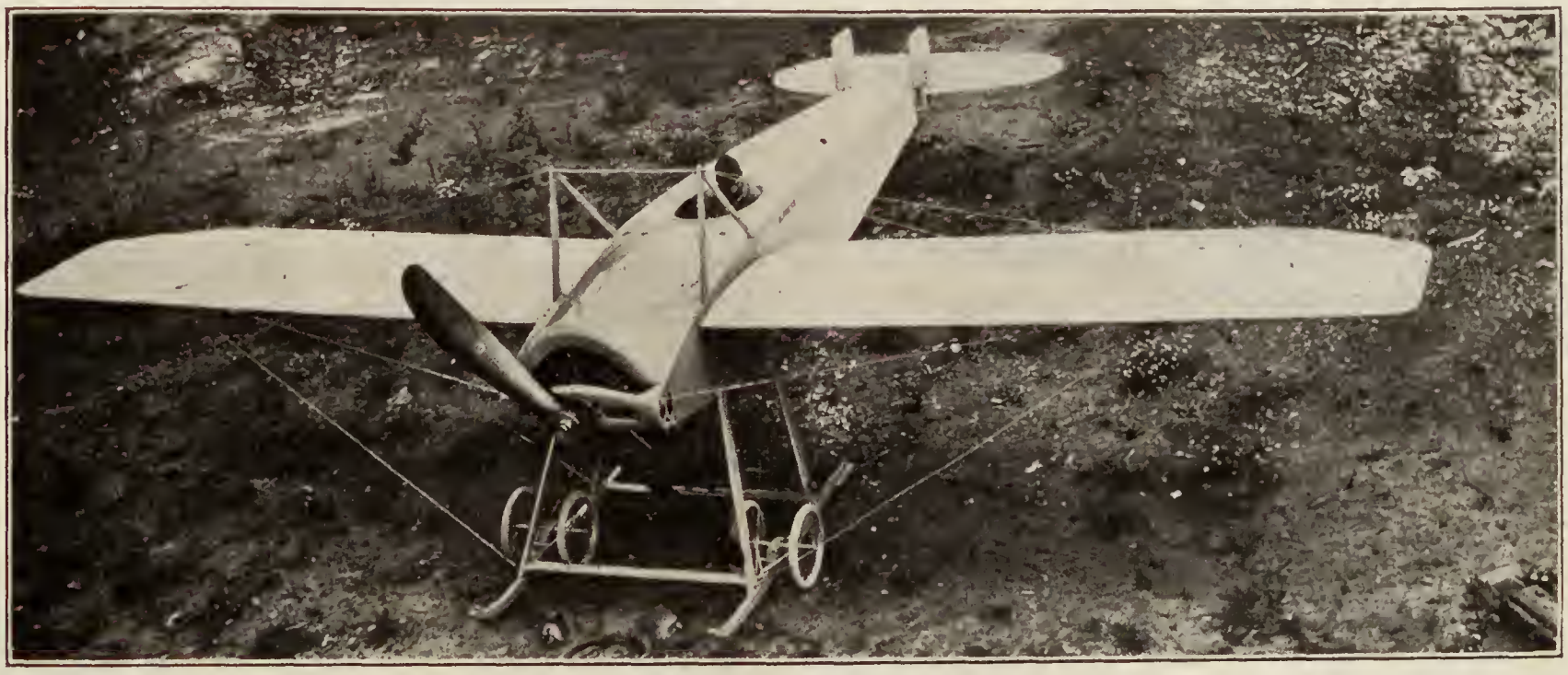
The device which is shown in the cut is attached to a standard Wright biplane which was operated during the experiments at College Park by Lieutenant Milling. The mechanism resolves bomb-dropping from the realms of theory into a scientific proposition. The apparatus is fitted with an angle-finder, telescopic sight and barograph.

A WORLD'S record for the greatest number of flights in a single day has been established by Hugh Robinson, who is aviation instructor for the Curtiss Aeroplane Company at Hammondsport, N. Y., when he made fifty-six flights on August 21. Robinson stayed in the air from eight to ten minutes on each flight, and it is estimated that during the day he traveled almost eight hundred miles.

Among the spectators were Captain Chambers and Lieut. Tower, of the United States Navy. They were present to see Assistant Naval Constructor Richardson try out a hydro-aeroplane. Constructor Richardson is well known in Philadelphia, where he was for some time attached to the Navy Yard at League Island. While at that place he experimented with hydroplanes.

Constructor Richardson received the second hydro-aeroplane license issued, the first one being obtained by Lieut. Ellyson last year.

Burgess Monoplane Ready to Defend Cup



The Monoplane Built by the Burgess Company to Enter the Gordon-Bennett

WE are forcibly reminded during these later days that there is a "live wire" aero club with its headquarters in Chicago. Slowly but surely the Aero Club of Illinois has continued its efforts in behalf of aviation until, today, it unquestionably stands forth as the leading aero club of America, not even excepting the "Sick Man of Aviation," the Aero Club of America.

After holding a meet last year that astounded the country, they are about to attempt to repeat and not only hold an aviation meet, but will also conduct a hydro-aeroplane contest, the first ever held in America. The aviation meet is scheduled to take place from September 12th to September 15th; the hydro-aeroplane races being held from September 16th to September 21st, inclusive.

For these events $24,000 has been raised in cash prizes and many of the prominent aviators of the country will take part.

Previous to the aviation meet, the Gordon-Bennett Aviation Cup race will take place at Clearing, near Chicago, on September 9th. Here the speed kings of the air will endeavor to wrest the cup from its present holder, and there seems every likelihood of it being accomplished.

The members of the French team have averaged upwards of one hundred miles an hour in the elimination trials. Just what the possibilities are from the other countries is not definitely known.

America's hope lies in the monoplane recently delivered to the Chicago Defender Syndicate. The Aero Club of Illinois has not only assumed the burdens of the Gordon-Bennett for the "Sick Man of Aviation," but apparently is the only club to make an attempt to retain the handsome Gordon-Bennett trophy in America.

It is now expected that some one will pilot the Nieuport monoplane, belonging to the Aero Club of America, in the Gordon-Bennett race. It is so comparatively slow, however, that the only chance it would have of winning would be for the fast ones to smash up.

A cable announces that Claude Grahame-White will sail for America as a team mate for Gustave Hamel, who will represent England in the cup race. George Dyott, who flies a Deperdussin and who has been connected with the Sloane School of Aviation in New York, was mentioned, at one time, as a possible British representative.

Jules Vedrines, Maurice Prevost and Andrew Frey have already sailed for America. This team from France is looked upon as the probable winner. The speeds attained by them exceed any made by the machines of other nations, and if they stand up there seems no doubt but that France will get its first leg on the cup. But when we remember the misfortunes of Leblanc at Belmont in 1910, we realize that such accidents might happen again.

Edmund Audemars, who recently completed a record Paris-Berlin flight, has also sailed for America to represent Switzerland in the Coupe Internationale d'Avaition.

Famous Trophy for Ocean Flight

MRS. WOODHULL MARTIN, formerly Victoria Woodhull, one of the pioneer women suffragists of America, has offered through the Women's Aerial League, of London, a superb antique centerpiece to the first aviator who crosses the ocean to America.

The trophy is one of the art treasures of Mrs. Martin's beautiful home at Norton's Park, Worcestershire.

THE AERO CLUB OF PENNSYLVANIA



Room C. Bellevue-Stratford Hotel

Philadelphia, Pa.

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OFFICIAL NOTICE.

A stated meeting the the Aero Club of Pennsylvania will be held in Room C, Bellevue-Stratford, on Friday evening, September 6, 1912, at 8 P. M. A full attendance is desired.

CLARENCE P. WYNNE,
President.
GEO. S. GASSMER,
Secretary.

CLUB NOTES.

The past month has been notable for the flights made by our members.

Marshall Earle Reid showed himself a consummate master of the art of flying in rough and uncertain winds, in the series of mail and passenger carrying flights between Ocean City and Stone Harbor, New Jersey. The flights were made along the ocean beach, a distance of twenty miles, and across two wide inlets. The beach at Stone Harbor, which is the widest and smoothest on the Jersey coast, is especially adapted to flying, and would be an excellent place for trying out new machines.

Through the efforts of the officers of the club, the postmaster general established postal route 609,003 between the two post offices, and Mr. Reid was sworn in as a mail carrier. On the seven trips he carried about 15,000 pieces of mail. The average time consumed on the trips was 28 minutes, as against the time by train for a passenger of 74 minutes, and of mail eight to twelve hours.

The first six trips were made exactly according to schedule, but the last trip was delayed on account of the 30-mile sea breeze, which would have endangered the lives of the vast crowds which thronged the boardwalk at Ocean City.

This was the most ambitious and most important series of mail and passenger carrying flights that has ever been attempted on a regular schedule, and the Aero Club of Pennsylvania may congratulate itself that it was carried out under its auspices so successfully. Tte president and secretary were at Stone Harbor during the flights, while the treasurer and several members of the board were at Ocean City.

The flights were arranged and managed by Mr. Thomas Taft Tuttle, who was a founder-member of the club and a former secretary.



Bergdoll Aeroplane Shed at Eagle Field

Grover Cleveland Bergdoll has been doing some magnificent flying at the Eagle Field. On July 31, with his brother, Louis Bergdoll, he attained an altitude of about 5000 feet, remaining in the air for forty-three minutes. A few days later he reached nearly 9000 feet in a flight of over one hour.

On August 16, accompanied by his mechanician, he flew from the Eagle Field to Atlantic City, a distance as the aeroplane flies of about seventy miles, flying a large part of the way at an altitude of 7000 feet. He started from the field at 5.30 A. M. and landed at Atlantic City one hour and thirty-five minutes later. On the return trip the same day, he accomplished a distance of about fifty miles, when he descended on account of slight motor trouble. Mr. Bergdoll has made nearly one hundred and seventy-five flights without the slightest accident. He has carried a large number of his fellow club members as passengers, and the Aero Club of Pennsylvania can probably point to more members who have been up in the air than any other club in the country.

The board of directors has held a special and a stated meeting during August. A number of new members were elected, and the prospects are very flattering for a season of unusual activity. Plans are already under consideration for a series of addresses and lectures during the fall.

An Analysis of the Forces of Flight

By George A. Spratt, Jr.

(Second Paper)

EVERY point of a surface, when immersed in a current, is in contact with matter that is in motion. Pressure, either greater or less in amount, and either positive or negative in direction, is communicated to every point upon the surface. For the present this pressure is to be considered frictionless, and therefore, normal to the surface at the point of its application.

In considering the first example, namely, a curved surface moving straight through still air or fixed against a straight current, the effects of the pressure will be compared with those obtained with a plane surface in a straight current, because of the more common familiarity with the latter. The circularly arched surface, however, is the simpler surface of the two in which to account for the results of pressure, and later the reasoning will be from the circularly arched surface to show a certain analogy of action with the plane, which cannot be arrived at by treating them independently, nor by reasoning from the plane to the arc, and which, when once seen, connects the various curves and the plane in a harmonious relation.

Before directly taking up the example, and as a review of the plane, let the following facts be brougth to notice.

The pressure at each point in a plane surface is normal to the plane. Taken collectively at all points, they are parallel to each other in their direction, and therefore, their resultant is normal to the plane. The point at which the resultant intersects the surface is called the centre of pressure. A change in the angle of incidence causes a re-location of the point of intersection either forward or backward, which shows that the pressure is not equal at all points, and that its distribution is altered by a change in the angle of incidence. A force equal and contrary to the resultant, applied at any point along the resultant, will establish equilibrium. If such a force is applied at the surface, its point of application must vary forward or backward along the surface equally as the point of intersection of the resultant varies with the change in the angle of incidence, and if such a force is applied at any other point along the resultant, that is, at a point distant from the surface, an equal forward or backward variation is necessary, because for every angle of incidence, the resultant is normal to the plane.

This same line of reasoning, when applied to a circularly arched surface, leads to quite another conclusion. The pressure upon a circularly arched surface, in being normal to the surface at each point, is directed coincident with the radius at each point, and from all points, they are directed either positively or negatively through the common centre of the radii. Their resultant must, therefore, pass through this centre, although change in the angle of incidence may, to any degree alter the distribution of the pressure, or to any degree reverse the pressure. The change in the location of the point at which the resultant intersects the surface, that is, the so-called centre of pressure, is more pronounced than upon the plane, because a change in the angle of incidence causes a more pronounced re-distribution of the pressure, and consequently also a more pronounced change in the resultant pressure value. Since the point of intersection of the resultant varies with the change in the angle of incidence, and its passage through the common centre of the radii remains fixed, it is evident that a change in the angle of incidence causes also a change in the direction of the resultant. At some small angles of incidence the resultant of the pressure upon a shallow circularly arched surface fails to intersect the surface, but passes to the rearward of it. There is then no centre of pressure upon the surface, simply a couple exists. A force equal and contrary to the resultant applied at the common centre of the radii establishes equilibrium for all possible angles of incidence, for this is a point common to all possible resultants.

Experimental verification of the foregoing can be obtained with the following simple apparatus.

A gentle, even breeze is of the first importance and, probably is the most difficult requisite to obtain, a shallow dish full of water, a circular disc of sheet cork about four inches in diameter, a piece of very thin sheet metal about two inches by five inches, a pin and a piece of fine thread, are all that is required.

Give the metal sheet a circularly arched curvature along its short dimension of a slightly less radius than that of the cork disc. Erect it upon the disc with its centre of curvature coincident with that of the disc. (It may be pressed into a circular shallow incision.) Now, when the disc is placed upon the water, the metal sheet represents an arched surface and stands erect from the cork float like a sail. The thread is to be attached to the float at any desired point.

The breeze should flow across the water steadily, and gently engage the surface without pressing it noticeably out of the vertical. Its pressure is to be resisted by the thread, and while retaining the surface against the breeze, the thread represents a force acting in a straight line equal and contrary to the resultant of the pressure upon the surface, and therefore, lies coincident with the resultant.

See figure 1.

By repeated experiments, in each of which the thread is attached at a different point upon the float, the fact will be noticed that whatever the direction of

the thread, if its line is projected, it passes nearly* through the centre of curvature of the surface, which is here coincident with the centre of the cork float. This verifies the statement that the resultant, at any angle of incidence, passes through this point.

If the float be pivoted about a fixed point at its centre, the surface will appear to be almost* insensible to the pressure at whatever angle of incidence it may be placed to receive the current, which again shows that the pressure centres at the common centre of the radii.

The circularly arched surface is the only surface possessing a centre of pressure in this fuller sense, and this centre is a fixed point and outside of the surface.

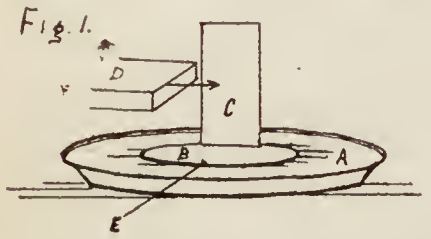


Figure 1.
A, shallow dish of water; **B**, cork float; **C**, circularly arched surface; **D**, air current duct; **E**, retaining thread.

In this lies the solution of the inherent stability possessed by Nature's flying creatures who have arched wings, and which is being sought for for improvement in aeroplanes. Its application and service will be considered further under the treatment of "EQUILIBRIUM."

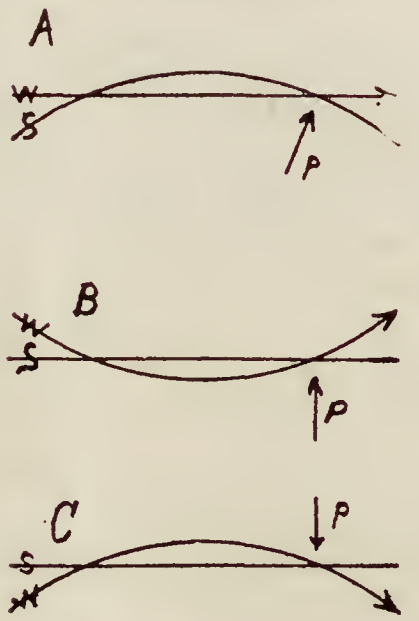
Since the pressures coincide with the radii and centre at their common centre, it follows that, as the curvature of the surface is flattened, the centre of pressure, like the common centre of the radii, recedes with the increased length of the radii, and for the plane is infinity.

The pressures upon a surface having a parabolic curvature, in being normal to the surface and coincident with the radii, like the radii, are directed through a restricted area, but to no common centre. There is no one point that a force which is equal and contrary to the resultant can be applied to establish equilibrium for all angles of incidence, however, if such a force is applied at a certain distance from the concave side, it will need to be moved forward or backward a less distance when a change occurs in the angle of incidence, than if applied upon the surface.

The parabolic surface may be considered to be a succession of circularly arched surfaces of increasing radius lengths, or as a circularly arched surface connected with a following plane. A decrease in the angle of incidence from an already small angle of incidence causes the point of intersection of the resultant and the surface to move backward upon a circularly arched surface, but forward upon a plane. When the two surfaces are combined as in the parabolic surface, this opposite tendency reduces the actual distance of the change of the location of the point of intersection, and it may be a less distance than upon either a plane or a circular arc of equal dimensions.

The second example of relative curvature, namely, "A plane surface may be moved in a circular path through still air, or be fixed against a rotating current," brings into notice a very interesting reversal of pressure. This reversal has been suggested by the opposite rotation of the surfaces shown in the diagram illustrating this example of relative curvatures, where the plane was carried in a curved path, and the arched surface in a straight path, with all conditions equal in each. As a result each revealed an equal amount of pressure, and an equal distribution of pressure, but a rotation about their central axes in opposite directions.

There is here a complete reversal in the general direction of the pressure. When the current is parallel to the chord of the arched surface, the general direction of the pressure is from the centre of curvature of the surface toward the surface, and when the plane is tangential to the rotating current, and with the centre of the plane normal to the radius of rotation, the general direction of the pressure is from the plane toward the centre of rotation of the current. (This will be illustrated in the experiment to be described under "Centrifugal and Centripetal Forces.") In the experiment referred to, the centre of pressure upon the plane, that is, the point of intersection with the resultant, is against the following half, normal to it, and in general direction is toward the centre of the board, and not, as might be thought from a first glance, against the leading half and away from the centre of the board.



This reversal may, perhaps, be more clearly shown by the diagram figure 2. Here **A**, shows an arched surface in a straight current; **B**, a plane in a rotating current the centre of which is above the surface; **C**, a plane in a rotating current, the centre of which is below the surface. In each, **W** shows the direction of the current; **S**, the surface; **P**, the direction of the resultant pressure and the half of the surface upon which it is found.

Fig. 2.

Whenever there is a change in the relation of curvature between a surface and a current there is a change in the amount of the pressure, and a change in the distribution of the pressure. The fact remains, however, that the surface establishes the direction of the pressure.

When a circularly arched surface is suddenly subjected to a rotating wind of a short radius, the resultant of the pressure, although it may be suddenly

*The precision of this experiment has been limited by the words "nearly" and "almost," because the head resistance, the skin friction and mechanical imperfections, are disturbing factors; their effect, however, lessens with the amount of care taken in avoiding them.

changed in its direction and in its amount, still passes through the centre of the radii. Under such conditions the resultant of the pressure upon a plane will be as suddenly changed in its amount and in the location of its point of intersection with the surface, but in remaining normal to the plane, will act along a line that at no point crosses its former line of action.

The third set of conditions in which there is a relative curvature, namely, "A plane surface may rotate about an axis within itself while moving through still air, or while fixed against a current," is well illustrated in the path taken by a block of wood, about four inches by one inch by three-eighths inches, when thrown swiftly forward with a backward rotation. The block will soar with a whirring sound. The rotation, combined with the advance of the block, establishes a relative curvature that is more effective for the advancing lower surface than it is for the relatively retreating upper surface.

This test is easily accomplished by placing the thumb and fingers along the long edges of the block, holding it horizontal and perpendicular to the course it is to pursue, throwing it overhand, and allowing the lower edge to slip off the thumb first, the rotation is then imparted to it as its upper edge leaves the fingers.

CENTRIFUGAL AND CENTRIPETAL FORCES.

The centrifugal and centripetal forces latent in a rotating mass of air are made active by contact with a surface.

If a portion of a mass of rotating air is caused to flow in a straight line tangential to its former course, that portion is freed from the force that held it in rotation. The centrifugal force in the freed mass is spent against the established rotating current, and the equal centripetal force is spent against the object that caused the deflection. A plane tangential to a rotating current, and with its center normal to the radius of rotation, accomplishes this by intercepting an advancing column of air, equal in section to its projection into the current, and causing it to pass in a straight line. A force is exerted against the plane toward the center of rotation.

It is equally true, that, if from an established straight course, a portion is caused to adopt a rotary course, the centripetal force is spent against the original current, and the centrifugal force acts against the object which caused the rotary course. A circularly arched surface with its chord parallel with a straight current accomplishes this by intercepting a column of advancing air, equal in section to its projection into the current, which is compelled to follow the arc of the surface. A force is exerted against the surface radially from the center of the curvature and perpendicular to the chord.

A simple experimental illustration is as follows: Into an ordinary pail with slanting sides, lower a straight wire of such length that it will engage the opposite sides and remain an inch or two above the bottom. Pour in water until the wire is covered. Place upon the water a sheet cork float, from the under side of each end of which, two pins extend astride the wire. The float, guided by the wire, can now traverse the diameter of the pail. Erect a plane near one end of the float, with its center directly over the guide wire, and with its surface perpendicular to the diameter of the pail. Its fore and aft measurement may be about one-fourth of the diameter of the pail, its height must be determined by the height of the pail. By means of a paddle turning close to the under side of the cover of the pail, impart a gentle rotary motion to the air in the pail, and the centripetal force draws the plane to the center.

The effect of relative curvature may be illustrated with this apparatus by mounting upon the float surfaces that have a curvature of a known relation to the curvature of the current at the point chosen for their location. If the radius of the surface is greater than the radius of the current, the surface will be carried toward the center. If the radius of the surface is less than that of the current, the surface will be carried toward the wall.

This centripetal pressure effect may be observed in the miniature whirlwinds common to the hot months, as they sort out and retain within their radius of action those light bodies whose surfaces present gliding qualities, but scatter those of spherical form.

It has long been recognized that curved wing surfaces develop a lifting pressure with their chord parallel with the current. This force is, very probably, a quantity that is fixed by the relative curvature, and constant in amount and direction regardless of the angle of incidence, acting always centrifugally, and, in the circularly arched surface, along the bisecting radius. It increases the value of all positive angles of incidence, and lessens the value of all negative angles of incidence. It reaches a maximum value when about 90 degrees of curvature are included in the surface. With a farther increase in the curvature, it diminishes, and is not present in an arc of 180 degrees. It develops again until about 270 degrees are included, and when 360 degrees are included in the surface, it is again absent. That is, a half cylinder with its chord parallel with the current, and a whole cylinder, show pressure only parallel with the current. A circularly arched surface including any other number of degrees, with its chord parallel with the current, shows a pressure which may be considered as acting from the common center of the radii along the bisecting radius.

Centripetal force results from a fixed plane in a rotating current, or from a plane carried in an arched path. If the radius of the rotation is perpendicular at the center of the plane (see Figure 3, **B**, here the radius of rotation is represented by the arm, **a**), the centripetal force acts parallel with the radius of rotation from

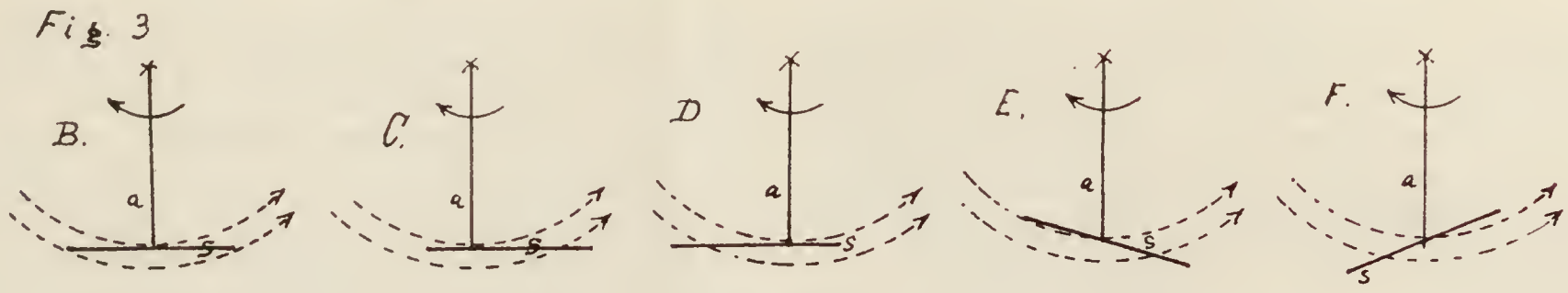


Figure 3.

x, center of rotation of arm a, which carries the surface s. The direction of rotation is shown by the arrow. The doted lines show the current encountered. At **B** the pressure is from **s** toward **x**, parallel with **a**. **C** and **E** show a positively increased angle of incidence. **D** and **F** show a negatively increased angle of incidence.

all points taken consecutively along the course. If the point of the attachment of the arm be moved toward the advancing edge of the plane (Figure 3, **C**), the effect is a positively increased angle of incidence. If moved toward the following edge (Figure 3, **D**), the effest is a negatively increased angle of incidence. Changing the angle the arm makes with the plane also changes the angle of incidence (Figure 3, **E** and **F**). By rotating the surface at the point of its attachment to the arm, the relation of the curvature is changed between the surface and the current. It is possible for the pressure from all points taken consecutively along the course to be made to center at the common center of the radii of the course, or at any desired point near this center.

In this, probably, lies the solution of the motion of the insect's wing and the flattened extremity of the bird's wing. The forward and the rear edges of the insect's wing may become alternately the leading edge, and intelligence may direct and utilize the pressure. This will be farther considered under "**Applications.**"

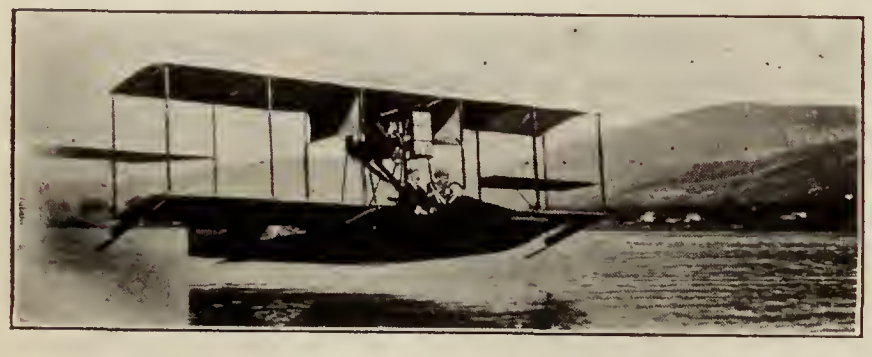
If a sheet metal surface is rigidly attached at its center to the end of a perpendicular arm that is mounted like a walking beam, one end of which carries the surface, and the other end connected to a rapidly revolving wheel, so that the surface will rapidly and reciprocally describe an arc, a flow of air will be established from the center of the vibration. It denotes an equal reaction, a centripetal pressure against the surface.

(A third paper will appear in the October issue of Fly.)

Glenn Curtiss Perfects New Hydro-Aeroplane

THE new Curtiss "flying boat," which Glenn H. Curtiss first tried out at San Diego, Cal., last winter with some success, has been reconstructed along different lines, and is now being used daily at Hammondsport, N. Y., on Lake Keuka.

The great objection to the "flying boat" tried at San Diego was the double-tractor feature, necessitating a chain gear. The new "air boat" has but one propeller, as on the standard Curtiss biplane.



The New Curtiss Flying Boat

Mr. Curtiss himself has made a great number of flights in the new type of hydroaeroplane, carrying passengers on many of them. Among those who have gone up as passengers with the designer and builder of the first and latest hydroaeroplane are Hugh Robinson and Beckwith Havens, who are themselves expert operators of the water-air craft.

The machine differs radically from the Curtiss hydroaeroplane now in use. The operator and passenger sit low down in the body of the float, side by side, well in front of the motor, which is placed just beneath the top plane. They are protected against splashing by a spray hood. The boat is fitted directly to the lower plane, which, it is claimed, improves the stability and flying qualities of the machine and makes it much easier to handle on the water.

There is no front elevator, and the rudder and rear elevator are attached to the end of the float. No bamboos whatsoever are used, and the machine is thus stronger, more compact and simpler than anything thus far designed by Curtiss.

Mr. Curtiss declares the new machine handles easily both in the air and on the water, and he believes that it is an improvement in many ways over the Curtiss design in use by the United States Navy.

FLYING over Salisbury Plains on August 12, G. deHaviland, carrying Major F. H. Sykes as a passenger in his biplane, broke the British record for altitude by ascending to a height of 9500 feet.

Why the Hydro-Aeroplane Appeal to the Sporting Public

The Flying Boats That May Supercede Hydroplanes

THE annihilation of time and distance is synonymous with the American people. We have become the pace-makers of the earth. Only those things that move the fastest have a place in the business and sporting world today.

That we may transact our business quickly, we have telegraph, wireless and telephone systems, reaching to all parts of the United States. That no time may be lost when personal attention is required, we have an eighteen-hour train to Chicago, a twenty-four-hour train to St. Louis. If the individual must cross the Atlantic Ocean, the Lusitania and the Mauretania are ready to take him there in little more than four days.

If we are to be amused we flock to a motordrome, where dare-devil riders on motor cycles cover four miles in a few seconds more than two minutes. But better than this, the great automobile races draw their spectators by the hundreds of thousands. The sporting public will put up with every inconvenience conceivable to see Burman, De Palma, Dawson and a score of others attain speeds of eighty, ninety and even one hundred miles an hour, for a few hours. The Indianapolis classic, the Vanderbilt and the Fairmount Park race illustrate the interest that the public takes in seeing man risk his life partly for gold and glory, and partly perhaps because he has come to find exquisite pleasure in sweeping over the earth with the speed of the whirlwind.

No one whose blood runs red can deny the feeling of exhilaration that sweeps over him as the wind thrashes his face and the indicator of the speedometer oscillates about the fifty-miles-an-hour mark. But in this there is always a lurking danger. A blow-out, a loose wheel, a broken axle, and a score of other accidents, may occur to hurl you to eternity.

In the early days on the Mississippi when the rivalry among the steamboats was at fever heat, chairs, partitions, wood-work and even cargo went to feed the furnace that the engine might get a few extra pounds of steam to push the boat ahead faster. A few years ago when by strenuous efforts the engineer was able to get his motor boat up to a speed of twenty knots an hour, it was thought that a miracle had been wrought. Today a speed boat must make thirty knots to be looked upon with favor, and even that speed has been surpassed.

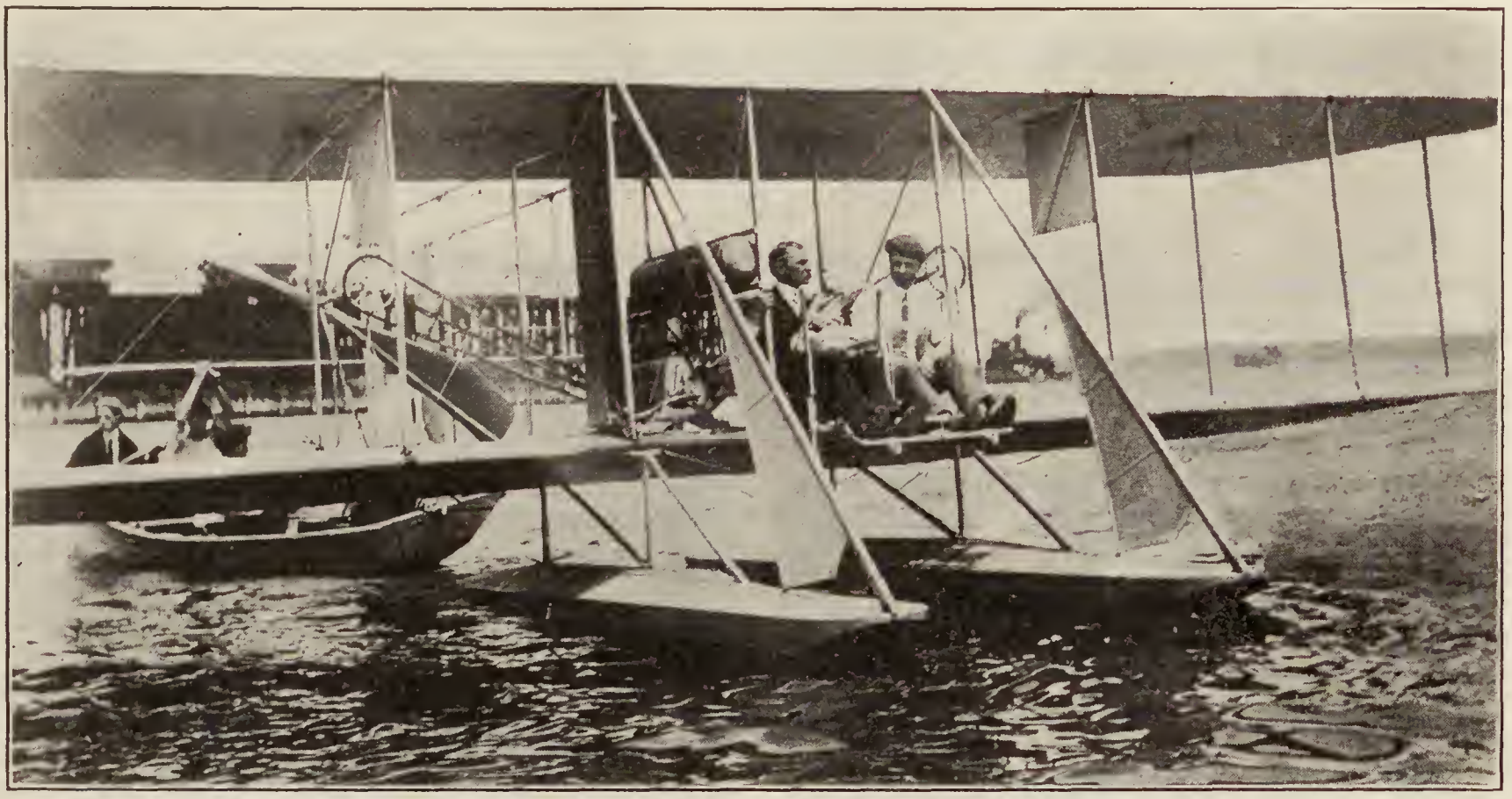
What is more delightful than crouching in a speed boat that is making thirty miles an hour, the spray dashing high on each side, perhaps occasionally drenching you to the skin unless the pilot is a careful one, and watching the churning wake that you leave behind. No one will deny the lure of the speed boat. It is safe and sane, but it is not yet fast enough to meet the requirements of the enthusiast and speed fiend.

With the dawn of the aeroplane era, we have lived to see a speed of one hundred and five miles an hour attained. Now, say the sporting public, we are getting near the goal. But the men who are willing to fly an aeroplane at this speed are few. There are very few competent to do so. In addition to this fact the people who like speed and who own fast motor cars and speed boats, are not yet reconciled to the idea of traveling through the air. They realize that the ground is not the softest thing in the world to fall on from a considerable height, and in flying over land one must fly at an altitude of at least three or four hundred feet.

But man is not to be denied, and he has continued to seek the medium that will give speed and safety. It has come through the aeroplane. In the hydro-aeroplane we have all the thrills of the fast motor car and the exhilaration of the speed boat; faster than the motor boat and safer than the automobile. One can fly in a hydro-aeroplane at a height of not more than five feet above the water and at the same time attain a speed of more than sixty miles an hour.

Another year will see the American public wildly enthusiastic over the hydro-aeroplane and "flying boat." What will delight the eye more than a hydro-aeroplane race? Marvelous birds that skim the water like a swallow and travel a mile-a-minute. In this sport the wealthy can indulge with little fear of danger. A bad landing can upset only the machine and throw its operator in the water. It is, of course, recommended that the aviator and passenger know how to swim. The sudden precipitation into the water of someone who does not know how to swim may cause them to develop a thirst that would prove fatal.

Always soaring over water, motor boats handy in case of trouble and life belts for an unexpected bath, make hydro-aeroplaning truly a sport. As you skim over the water before rising, the spray splashes up from the pontoon and dashes into your face in a fine mist, while you watch and see the line of foam sinking farther and farther under the machine. You continue to watch, and suddenly, and before you realize it, the machine gives a jump; you feel yourself moving faster, and as you look to see what the operator has done to increase the speed, you find that you are really flying. The instant that the machine lifted from the water,



Oliver G. Simmons starting on his official trip as the first aerial mail-carrier in New Jersey, July 4. Mayor Ferd. Garretson of Perth Amboy (left) holding the mail pouch on his knees

the drag of the pontoon was removed and consequently the hydro-aeroplane jumped ahead.

If you do not believe that hydro-aeroplaning is the coming sport, make a flight and convince yourself. There is nothing to fear and there are a score of aviators who will carry you as a passenger.

Both the Wright and Curtiss companies have stations where one of their aviators will carry you for a small charge. You do not have to leave the water if you are fearful, and yet you can easily move at the speed of forty miles an hour. Or if you just want to go up a little bit, the aviator can carry you to a height of five feet and maintain that level, provided there are not too many up-trends and down-trends. Over these the aviator has no control. One minute you may be only a foot above the water and the next you may be fifteen, but you are always safe.

Hydro-aeroplanes and "flying boats" will revolutionize motor boat racing in a comparatively few years. Hydroplanes have been but fore-runners of "flying boats." The "flying boats" are here! Why delay? If you are a speed fiend or enthusiast, water flying is the sport for you. It is safe and sane, and in addition gives all the thrills of hydroplaning and automobile racing.

Write to our advertisers for information regarding these new players in the great American drama entitled "Speed and Safety."

Rehearsals are taking place in all parts of the country. The curtain will rise on the opening performance in the spring of 1913. If you cannot afford to get a part in the show, at least find out about it and get in the audience.

The Quimby Monument Fund

LESLIE'S WEEKLY acknowledges the receipt of a number of letters approving the suggestion that a fund be raised to erect a monument in Woodlawn Cemetery to mark the resting place of the first American woman to obtain a license to fly a monoplane and the first woman in the woman world to perform the feat of flying across the English Channel.

Contributions have already been received by "Leslie's," and letters accompanying them attest to the high esteem in which Miss Quimby was held, not only for her rare personal qualities, but also for her remarkable courage in demonstrating her faith in the science of aviation.

Contributions can be addressed to "The Quimby Monument Fund," *Leslie's Weekly*, 225 Fifth Avenue, New York City.

Is Red Best Color for Balloons?

According to the researches of M. Reynaud, caoutchouc is strongly attacked by the ultra-violet rays from the mercury vapor lamp with a quartz tube, which is a powerful source of such rays. This fact has a practical bearing in connection with balloon envelopes which are treated with caoutchouc. Aeronauts are familiar with the discovery that the envelopes suffer during ascensions, and this is explained by the greater effect of ultra-violet rays at high altitudes. Experiment had already led to using yellow coloring matter on the envelopes, and red balloons are sometimes seen, but never blue or violet. M. Reynaud considers that red is the best color to use, as it not only absorbs the ultra-violet rays, but also the blue rays, and these last are likely to share in the bad action of the sun's rays upon balloons.

The Donnet Lévêque Flying Boat



Photo by Paul Thompson, N. Y.

Andre Beaumont flying the Donnet-Lévêque Hydro-Aeroplane

WITH the hydro-aeroplane rapidly assuming a leading place in both flying and water sports, it is interesting to note the scores of types that are springing up in all parts of the world.

Our attention is attracted to an article in *Aeronautics* (British) describing a new flying boat that has been successfully tried out along the Seine in France; partly because the hydroplane follows apparently the lines of the flying boat with which our own Glenn H. Curtiss has been working for sometime, and partly because one of the leading members of the company manufacturing this hydro-aeroplane is Lieut. Jean Conneau, better known in the flying world as André Beaumont, winner of the three big European circuit races of 1911 and a master aviator.

The following description of the Donnet-Lévêque hydro-aeroplane is taken from *Aeronautics* (British) and we are indebted to them for this first hand information.

"This hydro-aeroplane, although a biplane, is exceedingly speedy, and notwithstanding its comparatively small surface (183 sq. ft.) is able to plane in a most remarkable way. . . . This float can be compared to a long motor boat of the hydroplane type, and this graceful fish-shaped fuselage is placed underneath the lower wings. The engine (a 50 h. p. Gnome) is placed between the upper and lower planes and at the back so that the head resistance is reduced to a minimum, the propeller wash encountering no obstacles.

"The pilot's seat is inside the float, just in front of the lower plane, while the passenger's seat is just behind him, with enough space all around to carry bombs or any other luggage. In front of the blunt nose of the float and just above the water line is a horizontal fin-shaped rudder, which not only prevents the machine from diving and consequently overturning when touching the water, but as it moves concurrently with the rear elevator, it affords a useful indication to the pilot as to the inclination of the machine. All controls are worked through a central pillar and wheel on the Deperdussin lines, while lateral stability is obtained by ailerons.

"Just above the water line is fixed a movable axle which can, with its wheels, be entirely folded upwards when it is desired to start from the water. When the pilot wishes to land on terra firma, these

Continued on page 21

FLY MAGAZINE

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Advertising rates will be furnished on application.

Honesty in Aviation

EVERY new business has difficulty in making headway, even though it is conducted by reliable and honest men. But the way is made doubly hard when its success is interfered with by persons who try to use it as a "get-rich-quck" medium.

Aviation has been the victim of a number of concerns that have had for their sole object the amassing of wealth without giving anything for the money received. Their advertisements have been so alluring and their terms so much cheaper than other companies could afford to give, that they have easly separated a number of unsophisticated youths and men from their hard-earned money. The failure of these firms, either by reason of their own foresight or by the pressure of the United States postal authorities, has left these young men with a sour taste in their mouth for aviation.

In addition there have been a number of "fly-by-nights," who have in some unknown manner impressed well-to-do residents of various towns and cities with the idea that aviation is a Golconda. They have offered to build and fly machines for them, if the said well-to-do party will finance the venture and pay the young "inventor-aviator" a salary. After an investment of anywhere from $3000 to $7000 and the machine fails to fly, the "inventor-aviator," as the local newspapers describe him, departs for virgin fields. The result is that capital fails to regard aviation as a good investment.

Here we have two situations that have contributed to retard aviation. Discouraged and disappointed because they have been filched of their money without getting any return for it, scores of young men have given up aviation and turned to some other trade, thus removing from the industry men who might have proven valuable either as aviators or mechanicians.

On the other hand, we see capital discouraged because they, too, have been mulcted. The result is that honest men with small capital are unable to enlarge their business because the man with money to lend does not look on aviation as a safe investment.

To prevent the unwary being caught in these schemes which is partly their own fault anyway, the Aeronautical Society of New York has established a Service Bureau, where anyone may apply for information regarding aviators, aeroplane companies or aviation schools, and receive an honest report.

It is the unworthy schools and companies that have sapped the life-blood of aviation and destroyed the confidence of honest people. All the aeronautic magazines have been caught at one time or another with advertisements of uncertain concerns, and, for ourselves, we repent in sackcloth and ashes. No pupil has ever written to us regarding a school that we have not immediately taken the matter up.

No **HONEST** man hesitates to tell the **TRUTH** about his business. Further, no honest man has anything to fear from investigation.

It is, therefore, with surprise that we read the attack of a Western weekly pamphlet, supposed to be published in the interests of aviation, on this bureau. The reason for the harangue may appear later, but at present we are concerned with those things that tend toward progress in aviation.

This choice bit of sentences to which we have already referred, states that the bureau wants a man sent to jail, if he fails in his endeavors to teach, to fly or to build. We doubt if any whose endeavors are **HONEST** were ever bothered by this bureau.

Right and wrong being a matter of opinion we cannot judge the standards by which this paragraph was written. However, from where we sit,

anyone who accepts money to teach aviation or to operate an aeroplane when they are not competent to do so, is dishonest. If they are honest they will employ competent men to carry out the contracts that they make.

The United States postal authorities do not interrupt the business of doubtful companies without just cause.

The Service Bureau of the Aeronautical Society stands for a healthy growth in aeronautics. They will serve anyone who will take the trouble to inquire of them.

We cannot hope for a healthy tree from rotten roots. Nor can we expect a successful industry to grow upon a foundation built on shifting sands.

New Tractor At Griffith Park

FLYING a tractor biplane of his own construction, and with his wife as a passenger, Floyd Smith, of San Diego, Cal., flew from Santa Ana to Griffith Aviation Park on the morning of July 20, 1912.

Leaving his starting point at 5.21 A. M., he rose to an altitude of nearly 1000 feet. On account of an inland fog he was compelled to fly low in order to keep his course. Upon arriving at the outskirts of the city of Los Angeles, he elevated to 1500 feet, flying over the business section as well as the county court house. His destination was reached at 6.28 A. M., making the total time, 1 hour, 7 minutes, and the mileage, 45. Seven gallons of gasoline and one gallon of oil were consumed during the flight.



The Floyd Smith Tractor Biplane

The plane used by Smith was built with the assistance of Charles Day. It is equipped with two seats and also a dual control system for operating. The seats are in tandem immediately in back of the motor. The power plant is composed of a 60-horsepower Hall-Scott motor, driving a large tractor direct.

Although Mrs. Smith has had but little practice in operating her husband's plane, she relieved him at intervals during the flight, and after landing expressed a strong desire for "more."

Glenn Curtiss Goes to Europe

STATING that his foreign business has grown to such proportions that it requires his personal attention, Glenn H. Curtiss, the aeroplane inventor and manufacturer, sailed yesterday for Europe aboard the "France" of the French Line. While in Europe he will demonstrate a Curtiss hydro-aeroplane destined for the German Government, confer with Russian and Italian naval officials regarding orders from those governments, and arrange for the introduction of the new Curtiss "flying boat" in Europe.

"In January, Mr. Fanciulli, of our company, took Hugh Robinson to Monte Carlo to demonstrate our hydro-aeroplane," said Mr. Curtiss, in discussing his trip at the pier. "While in France Mr. Fanciulli sold two machines in that country and received an order from a German concern, besides selling three hydro-aeroplanes to the Russian Navy. The latter are now being demonstrated at Sevastapol by Charles C. Witmer, one of our aviators.

"In the past two months we have received additional orders from Russia, Germany and France. We have also received orders from Italy and England. Besides this European business, the Japanese Government has purchased three hydro-aeroplanes from us for its navy, and several officers are now at Hammondsport, N. Y., learning to operate the machines. The point I want to make is that the foreign governments are building up vast aerial navies, while our own country has only about a dozen aeroplanes."

Asked about the development of aviation commercially, Mr. Curtiss waxed enthusiastic over the success of the "flying boat," of which he is the inventor. "It is the one thing that makes aviation safe as a sport," he said. "We have developed this 'flying boat' as we call it, so that we can carry a ton of weight at a speed of over sixty miles an hour. The operator and passenger are as comfortably seated and shielded as in an automobile. The machine maneuvers on the water at a much faster rate of speed than the swiftest motor boat, and it handles in the air just as easily as the regular aeroplane."

Simmons Flies to Perth Amboy

FLYING at Seidler's Beach, N. J., O. G. Simmons, licensed aviator for Robert J. Collier, made two passenger-carrying flights on August 13 in his standard Wright biplane, equipped with Burgess pontoons.

In the morning, in a high wind, Simmons carried H. B. Hankins as a passenger to Staten Island and return. In the afternoon the hydro-aeroplane was again launched and with the same passenger Simmons flew to Perth Amboy, where they were greeted on the beach by Mayor and Mrs. Ferd Garretson. When the aeroplane was seen approaching, the fire bells were rung and a large crowd assembled to watch the hydro-aeroplane land. On the trip over to Perth Amboy the machine was in the air thirty minutes.

Captain Honeywell Wins National Balloon Race

The "Uncle Sam" Makes Longest Flight in United States

Balloon	*Pilot*	*Aide*	*Landing Place*	**Distance*
Uncle Sam	Capt. H. E. Honeywell	R. F. Donaldson	Manassas, Va.	914
Kansas City II	John Watts	G. Quisenberry	Belleville, Mich.	650
Drifter	Albert Holz	Trautman	New Berlin, Wis.	449
Million II	P. McCullough	John P. Hart	Spring Green, Wis.	377
Million I	John Berry	Von Hoffman	Nora, Ill.	347
Goodyear	George Bumbaugh	Upsom	Pola, Ill.	342
Cole	E. J. Custer	A. Farrell	MacGregor, Ia.	330

* These distances are official.

WHEN the final count was taken of the balloons competing in the National Balloon Race, which started from Kansas City on July 27, it was found that first honors were captured by the Uncle Sam with the Kansas City II and Drifter, second and third respectively. This means that the pilots of these three aerostats are entitled to represent the United States in the Coupe Internationale des Aeronautes, better known as the Gordon-Bennett balloon race, which will start this year from Stuttgart, Germany, on October 27.

Out of the seven balloons that started, atmospheric conditions prevented four of them from traveling even four hundred miles while the Drifter only succeeded in getting by this mark with a small margin. Beset by storms the pilots were unable to outride them and as a result were forced to come to earth after covering a comparatively short distance.

There was one balloon, however, that outwitted the storm king and succeeded in traveling about nine hundred miles before fear of being swept along the Atlantic seaboard brought it to earth. The aerostat in question was the Uncle Sam, piloted by that veteran of the air, Captain H. E. Honeywell, and in the early dawn of July 29, the balloon settled to earth on the historic battlefield of Bull Run. Captain Honeywell, with his aide, R. F. Donaldson, remained in the air about thirty-five hours and covered in that time

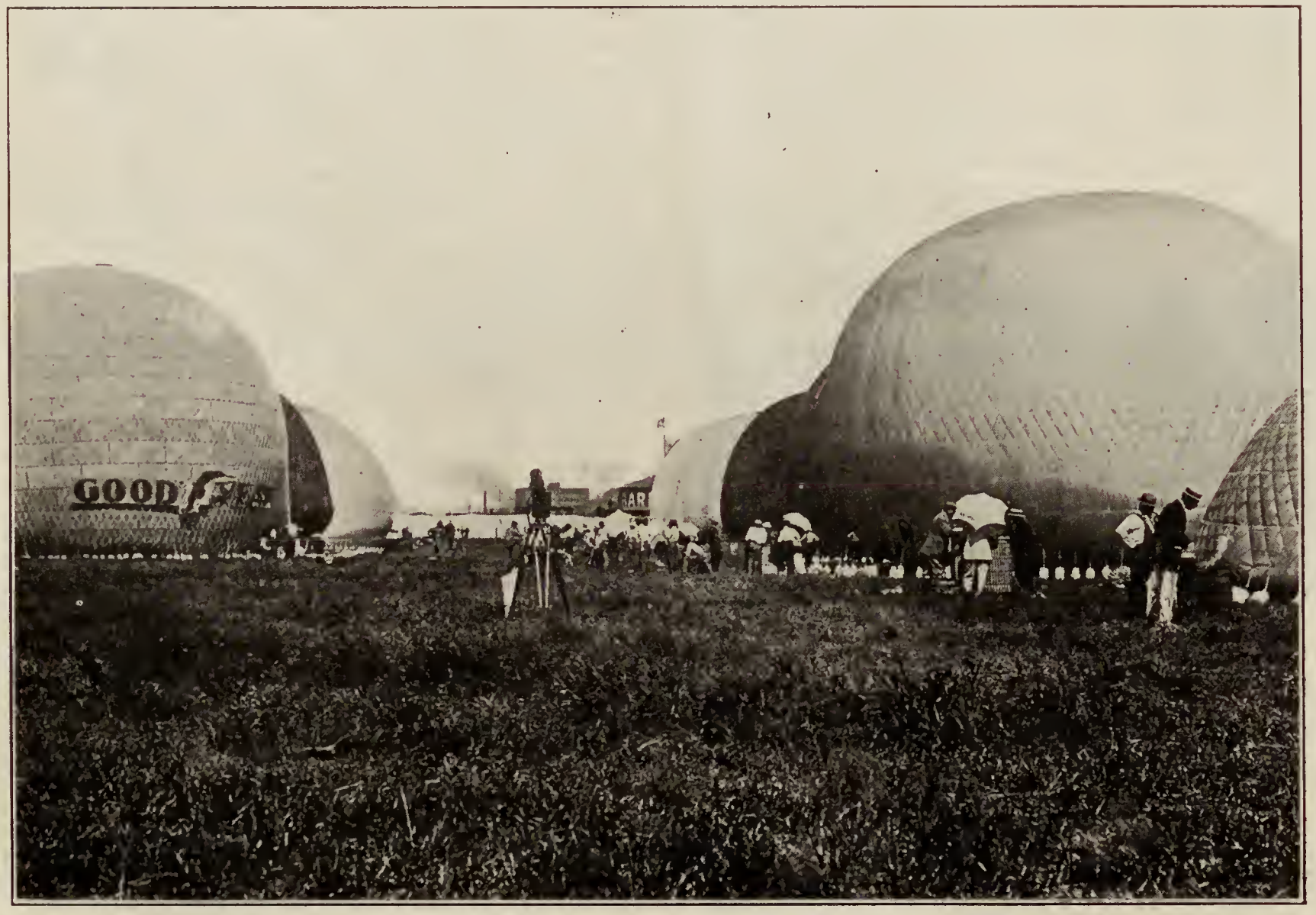


Photo Courtesy of Goodyear Tire and Rubber Co.

Inflating the Balloons at Kansas City, for the National Contest

nine hundred and twenty-five miles as the crow flies.

Alan R. Hawley, who will be remembered as the winner of the Internation Balloon Race in 1910, when interviewed in Paris regarding the outcome of the elimination trials, said that he considered Captain Honeywell a very good and experienced man and that he is well qualified to represent the United States with good chances of success.

Will the Aero Club of America and others please note that Mr. Hawley, who is an expert aeronaut, says further:

"I hope the American team will be sent to Europe with new balloons and proper equipment. I do not think we would stand any chance with the balloons used for the eliminatory trials."

John Watts, with George Quisenberry as his aide, piloted the Kansas City II, which finished second in the race. The balloon landed near Belleville, Michigan, after covering six hundred and forty miles. Watts and his aide were forced to trail in the wake of a heavy electrical storm all night, and after attempting to rise and pass over it were forced to descend and allow the storm to pass over them.

The Drifter, piloted by Albert Holz, representing the Aero Club of Cincinnati, secured third place by landing at New Berlin, Wisconsin, after covering four hundred and twenty-five miles.

Captain Honeywell's flight is the longest ever made in America, with the start and finish in the United States.

While the pilots of the three balloons are eligible to pilot aerostats in the International Balloon Race, the Aero Club of America has not obligated itself to select the American team from the winners.

The Million Population II seemed to have victory snatched from its grasp when the drag rope was caught in a tree and part of the envelope slipped through the netting and tore out. This balloon was piloted by Paul McCullough, with John Hart as aide.

Another dissappointment was the forced landing of the splendidly equipped balloon Goodyear, representing Akron, Ohio, and piloted by George Bumbaugh. Here again the violence of the storm robbed the pilot of all hopes of success, and a landing was made near Pola, Illinois, after the balloon had covered three hundred and fifty miles.

John Berry, piloting the Million Population I, landed near Nora, Illinois, after covering three hundred and sixty miles.

The Cole in charge of Dr. E. J. Custer, with Andrew Farrell as aide, landed near MacGregor, Iowa. They covered three hundred and twenty-five miles and had thrilling experiences in an electrical storm.

One of the unfortunate events of the contest was the failure of the balloon St. Louis No. 4 to start. This was to have been piloted by William Assman, one of the most competent aeronauts in this country. Starter A. B. Lambert refused to allow this balloon to start when holes were discovered in the aerostat on the morning of the race. It is thought that the holes were caused by the stubble in the field on which the balloon was spread out on the previous night.

The race last year was won by Lieut. Frank P. Lahm in the balloon St. Louis No. 4, which covered four hundred and eighty miles.

Record Channel Flight

ANOTHER record flight was made across the English Channel on August 4, when A. B. Moorhouse flew across with two passengers. The machine used was a new Breguet.

The flight began at Douai, in France, at 6.30 A. M. and with Moorhouse was his bride and a correspondent of a London daily. The machine flew over sea and land for thirty-two miles and descended at Ashford in Kent.

Throughout the journey the aeroplane ran into several heavy and blinding rainstorms; one was so thick that they could not see. On emerging Moorhouse found that they were headed vertically downward into the sea. After drifting out of their course they finally sighted the coast line and here the machine encountered one gust after another. In one of these the machine dropped several hundred feet. Another gust caused the machine to practically stand in a vertical position on the left wing.

They finally landed in Ashford and crashed into a tree which the machine uprooted. The aeroplane was smashed, but the passengers escaped unhurt.

The Donnet Leveque Hydro

Continued from page 17

are immediately released into their ordinary position by a most ingenious method.

"The whole boat is divided into several watertight compartments and the flat keel is horizontal from the rudder up to a point corresponding to the middle of the planes, while from there to the front elevator it is gradually curved. The continuity of these two surfaces is divided by a step, as in the keel of hydroplanes.

"As soon as the machine has attained a sufficient speed, the tail leaves the water, and only the sloping front glides on the surface. Then as soon as the pilot moves his elvator the whole "winged canoe" rises gracefully into the air after having rushed through the water over a distance of about fifty yards. One of the most extraordinary features of this remarkable little machine is its uncommon speed, which is well over seventy miles an hour.

". . . This new type of hydro-aeroplane, considering the short time that it has been in existence, has created quite a stir in military and naval quarters in France, and several foreign missions have come to witness the trials. . . ."

Suggests Four Causes for Akron Disaster

Goodyear Company Makes Thorough Investigation

Editor, Fly Magazine,
Bulletin Building,
Philadelphia, Pa.

Dear Sir:—

There was no representative of The Goodyear Tire & Rubber Company in Atlantic City to witness the accident, and, consequently, we must base our conclusions on the various and sometimes conflicting reports of those who were eye witnesses, and upon the investigations which we have made as thoroughly as possible of the remnants of the wreck.

The wreckage was raised from the water at considerable expense, and its condition carefully noted. Sample pieces of the fabric were tested out, and all possible tests made that could in any way throw any light on the cause of the accident, and the probable reasons for it.

We regret that our statement, from the very nature of things, cannot be as explicit and satisfactory as we would like to have it. However, we will give it to you for what it is worth, and from it you can draw your own conclusions. We have made it out in the form of a general discussion of all the theories of the possible cause of the accident. It is hard to tell which one is the most plausible.

In thinking of the Dirigible Balloon "Akron," kindly remember that the gas bag only was constructed by The Goodyear Tire & Rubber Company, and that according to the general specifications and suggestions of Mr. Vaniman. The car and the entire work of assembling was carried on at Atlantic City under the direct supervision and direction of Mr. Vaniman. We believe that this accident contributed a great deal to the science of the manufacture and operation of dirigible balloons.

We believe strongly in the future of the dirigible, considering it only a matter of time before its development in this country will equal and surpass its development in Europe and other foreign countries.

We are ready to construct dirigibles of any type, and will welcome anything that you can do to assist in bringing the dirigible to its successful completion in this country.

Any and all of this letter is for publication, if you so desire, for we are willing and in fact wish everybody to know the true facts of the case. We are glad to furnish any and all information which we can which will in any way throw light on this unfortunate accident, and aid the science of aviation.

Referring again to the accident at Atlantic City, our statement of the results of the investigations at Atlantic City, and our theories of the probable cause of the wreck of the "Akron," are as follows:

As we have said before, the factory had no representative in Atlantic City at the time of the disaster, and, unfortunately, a large part of the gas bag was cut up by fishermen and carried away as souvenirs before it could be protected. The accounts of witnesses vary greatly as to detail, but the following summary covers the points on which reliable eye witnesses agree:

The balloon started directly away from the hangar, and holding its course, proceeded to a point over Brigantine Beach, then made two wide circles, and was making the third when the accident happened. The ship was rising during the whole time that it was in the air, and had attained an elevation of about 2500 feet. Shortly before the bag collapsed, the bow of the ship seemed to be pointed downward and the orientable propellers running, apparently in an effort to bring the ship down to a lower level. Accounts vary as to the exact method of collapse of the bag, but the general opinion is that the rent in the bag occurred near the stern; the ship was almost on an even keel and poised a moment in that position, then the stern sank and she plunged downward; when part way down, the greater portion of the gas bag tore loose from the car; the car shot downward, stern first, in a nearly vertical position until almost down to the water, when it swung around, partially righting itself, then struck stern first in nearly its normal position. The portion of the gas bag which had been torn loose, dropped into the water a short distance from the wreck, and floated up the channel with the tide.

There have been several theories advanced as to the cause of the accident.

(1) **Fire or explosion.** There was no evidence confirming this theory. The tanks, while battered up and more or less broken to pieces, showed no signs of having been ripped open from an internal explosion. All the motors were recovered but the small one and the cylinders found to be intact. Some of the bodies were burned, but the doctor who examined that of Calvin Vaniman stated that these burns were probably made by hot liquid of some kind (presumably hot water from the radiators) and not by hot iron, burning gasoline or by flame.

A violent explosion of gas would have been impossible. Recent tests on the gas showed it to be over eighty per cent. pure hydrogen, although the balloon had been inflated nearly four months. There were no signs of fire discovered on any part of the balloon, except one small spot on the fabric, which had evidently come in contact with a hot pipe. A few reports of smoke and flame having been seen are current, but most witnesses, particularly those familiar

with the operation of gasoline engines, say that the smoke was only the exhaust from the engine, and that there was no flame.

(2) **Rupture of gas bag due to internal pressure.** There are many stories current as to the gas bag being made of under-strength fabric, or that it had rotted from exposure or from impurities in the gas. The facts are these:

Mr. Vaniman specified in his design a maximum pressure corresponding to one inch of water. The balloon was actually built to stand an ultimate pressure of eight inches, thus giving a safety factor of eight, which considerably exceeds the usual figure. But there was reason for this excess strength. It was to be an experimental machine of rather novel design, and the first ever made in this country. Likewise, Mr. Vaniman, although a great inventor and genius in his way, had not had the long practical experience with dirigibles which is given to European pilots and which insures their doing the right thing at the right time. As to the fabric being rotted by the gas, or otherwise, it is sufficient to say that samples cut from the different parts of the bag after the accident showed no material deterioration in strength. All seams were tripple reinforced and showed far over one hundred per cent. efficiency as recorded by numerous tests. Although, on account of the souvenir hunters, it was impossible to tell where the bag had first broken, it is manifest that no seams (so far as observed) had been even strained.

In spite of this extra strength, the balloon could very easily have been burst by letting the pressure go up to an excessive amount. It would take a fabric fifty (50) times as strong to resist all the expansion likely to occur from the sun's rays, and it would be impossible to resist that due to increasing altitude. There is some slight evidence which seems to point in this direction. It was morning, the sun was getting hotter, and the balloon was rising at the time of the accident. Only the two rear engines were running. There were scalds on Mr. Vaniman's body which would indicate that something had called him to the rear of the car, away from the pilot's bridge where the pressure gauges were located. He had a large automatic safety valve of French manufacture, which should have been ample to take care of just such an emergency, but we found on examination that he had provided it with extra springs since the previous flight, which did not allow it to open fully. On the other hand the bottom of the bag was made purposely weaker than the top, so that if it did burst it would in all probability retain enough gas to let the machine down in safety.

(3) **Breakage of suspension ropes.** This theory has not to our knowledge been advanced before, but it would explain all the observed facts and has strong evidence to recommend it. The size rope used for supporting the car gave a nominal safety factor of only about three, and they had been tightened up much beyond their proper allowance. We have it from two of the mechanics that these ropes had been breaking frequently when simply standing in the shed. If two or more happened to break at once, the others would speedily follow suit, thus throwing all the strain on the bottom fabric, tearing it open and ripping the whole bag from the car.

(4) **Propeller breakage.** This also seems a plausible theory. We regard it as practically impossible that a propeller could have broken from centrifugal force alone. They were of wood, run at a slow speed, and were specially designed for the work by a reputable French concern. If, however, any part near one broke, a suspension rope for instance, a blade striking it would be easily broken off and might fly into the gas bag in such a way as to cause a fatal rupture.

While we deplore the fact that it was impossible to determine the exact cause, one may well take satisfaction in the fact that all of the accidents outlined above are entirely preventable. Such an accident occuring when it did might even have its advantages, for it will be a constant warning to aeronauts and designers in this country that extreme care in designing and unceasing vigilance in operation are the price of safety. If such accidents must occur, it is better to have them now than when the giant airships of the future are carrying hundreds of passengers.

In the meantime, we cannot appreciate too much the work of those who went to their death for the cause that is yet new, and which, like everything new, demands more than its share of money and lives.

Yours very truly,

THE GOODYEAR TIRE & RUBBER CO.
Aeronautic Supplies Department.

An Aeroplane Stationary in Air?

AN extraordinary claim is made for a German aeroplane recently invented by an engineer of that country. It is stated that this type of machine can be made to remain stationary in the air at a given point for an indefinite period.

It is said that the aeroplane, for which this astonishing claim is made, differs radically from any type of heavier-than-air machine hitherto constructed.

The German military authorities are said to be enthusiastic over the new invention and believe that it will open up incalculable possibilities for observations and the dropping of explosives.

The German paper responsible for this information further says that it would hesitate to circulate such a fantastic statement were the source of information not unquestionable.



A DEPARTMENT FOR ALL INTERESTED IN MODELS AND MODEL FLYING

Conducted by the Junior Editor — Model Editor, Philip T. McCutchen

Stability in Model Aeroplanes

By Oliver M. Prentice

AN aeroplane is said to be in equilibrium when its center of pressure coincides with its center of gravity. To keep a heavier-than-air machine stable the center of pressure and center of gravity must coincide, for the movement of one must result in a movement of the other in order that the machine may maintain its equilibrium.

There are two directions in which stability is to be maintained, viz., laterally and longitudinally. Of the two, lateral stability has puzzled designers the most. Correct design will make longitudinal stability almost inherent.

In a model aeroplane stability must be either automatic or inherent, as there is no chance to control the machine once that it starts on a flight.

In all models the center of gravity will remain the same while the center of pressure will vary throughout the flight. The next question is how to control the movements of the center of pressure. In standard machines it is accomplished by movable surfaces between the planes or at the rear edge of the planes, and by flexing the wings, thereby decreasing the lift on one side and increasing it on the other, and thus bringing the center of pressure back to its proper position.

In designing a model, its stability is the first point considered, for if it is deficient in this respect it will never be successful. Longitudinal stability should be first considered because it controls the length of the main frame. This is again important because it controls the length of rubber strand to be used.

Automatic stability need not be considered in model building, as it is too heavy and cumbersome for the ordinary machine. Inherent longitudinal stability can be obtained by placing the planes (elevator or tail, and main plane) a good distance apart. It is best to have the tail non-lifting. Some model builders advocate using only an elevator, but this applies only to models driven by propellers in the rear. It is well to note in passing that models of this type hold all records.

The method by which two planes in model aeroplanes retain inherent longitudinal stability is as follows: If a wind gust strikes the under side of the elevator, it has a tendency to force it up, but to do this it has to force up the large plane which gives a greater lift and thereby holds the model in equilibrium. A gust striking the upper side of the elevator will have the same effect, inversely. The elevator should always have a greater angle of incidence than the main plane, but it should not be carried to extremes. The best angle for the elevator is about one-third (1/3) more than that of the main plane. This has been found to work out well in practice, so that it may be safely followed.

In several of the most successful models, the main plane is placed flat and the elevator is given a positive angle. This applies only to models, the planes of which have curved surfaces. A curved surface will give a lift when flat, while a horizontal surface will not.

Lateral stability in models is greatly affected by the twisting of the rubber strand motors. They exercise a strong unbalancing tendency, which must be overcome. One of the methods used is the dihedral angle, but this is carried to too great an extent in many cases. The greater the dihedral, the less will be the lift, necessitating a larger plane and thereby increasing the weight of the model and a greater expenditure of power.

The method by which the dihedral effects stability is as follows: When a gust strikes the under one side of the plane, it pushes it up, thereby tilting the other side down. The side lifted up by the wind will then have a greater dihedral and therefore less lift, while the other side will exert a greater lift and tend to restore the machine to lateral equilibrium.

The dihedral angle acts well, but unless carefully worked out will have a tendency to make the model circle.

Another method that is extensively used is that of placing upturned wing tips on the extremities of the planes. These do not reduce the lift of the plane to any extent and they do damp out oscillations much quicker than any other.

Still another method that has not been tried, to any extent, is the use of a plane with a small inverted curve. In two models in which I have known it to be used, it has worked very well and I would like to hear from any readers who have tried it.

Two propellers revolving in opposite directions is probably the best method for obtaining lateral stability. This can be used in connection with any of the above mentioned methods, and a straight plane can be used with good results.

In conclusion it may be said that if a model builder looks well after the stability of his machine it will surely be a success if the other features are worked out as well as usual.

One Possible American Aeroplane Entry for Gordon-Bennett

IN an article regarding the 1912 Gordon-Bennett written especially for the FLY, which appeared in the April number of this volume, Earle Ovington said, "Indeed there is practically nothing which Nieuport could have done which would have given him the wonderful position he holds today in aviation if his machine had not won the Gordon-Bennett race in England last year. Looked at from a standpoint of patriotism or from a standpoint of business, therefore, it will pay the American manufacturer to really make a decided effort to hold the Gordon-Bennett trophy in this country."

At the time this was written there were no less than six men working on Gordon-Bennett machines. It was expected that both the Wright Company and Curtiss Company would each add a machine, and had all these aeroplanes materialized we would probably have had an elimination race which would have increased the enthusiasm over the Gordon-Bennett. On the eve of the great aviation derby, we find that the only possible defender is a monoplane built by the Burgess Company and Curtiss for a syndicate in Chicago.

In reply to a letter from this office asking for information regarding the defenders of the cup, the Aero Club of America, through its Contest Committee, advises us that, "At present the only possible defender of which we have been advised is the high-powered racer which is now being built for a Chicago syndicate, but there may, of course, be others building of which we have not heard."

There may, of course, be others, but we doubt very much if there will be a Monitor appear at the eleventh hour to wrest the victory from the Merrimacs of France.

When preparations were being made for the big race by the Aero Club of America for the big race, it looked like a big thing all the way through. Aside from bringing Weymann to this country, it was stated on the most reliable information that a substantial sum would be offered both the Wright and Curtiss companies to build racing machines to be equipped with foreign power plants for the contest. In fact about six months ago it seemed as if nothing would prevent the Aero Club of America from defending the cup successfully. The summer breezes, however, have been ladened with all sorts of lures and the "moving spirits" have fled far from club cares and Gordon-Bennetts. The result is certainly a disappointment.

The Defender Syndicate, which is probably composed of one of the leading members of the Aero Club of Illinois and a few of his friends, deserves credit if the machine does not even start, but it is sincerely hoped that it will. It takes courage and money to do these things independently, and those who display a willingness to enter machines should receive every encouragement.

Certainly the Aero Club of America must have known the condition of affairs in this country long ago. Have they lost interest in the race? Does the beautiful trophy fail longer to delight the eye of the members? Has the sporting blood become thin? If these things are not true, why does the club sit supinely by to discover at the last hour one possible defender?

We are not attempting to detract from the splendid effort made by the club to hold the greatest circuit race in history or to deny that they have made efforts to secure entrants for the Gordon-Bennett, but we do think it reflects on our patriotism and spirit to produce only one possible representative for the defense of the cup, and especially when the contest is to take place in our own country.

AMERICA has invaded Russia again with hydro-aeroplanes, and the Sebastopol Aero Club has been delighted with the splendid flying of C. C. Witmer, the well-known Curtiss aviator. The Curtiss hydro-aeroplane, perfectly piloted, rose and descended upon the water with the utmost ease. It is stated that the Sebastopol Aero Club has purchased ten Curtiss hydro-aeroplanes and Witmer is instructing the members of the club in the operation of them.

American Type Bleriot Continues Successful Season



F. C. Hild flying an American Aeroplane Supply House Bleriot

THE American Aeroplane Supply House, located at Hempstead, Long Island, has just completed an aeroplane of special design for the Republic Dominicana in the West Indies, and another for a party at Princeton, N. J. In addition they continue to turn out their standard type Bleriot monoplanes and have so far this season built almost a score of them. The factory reports that all of these machines have been flown successfully on the first attempt without any adjustments being necessary.

A new branch of the American Aeroplane Supply House is a school for the instruction of pupils on Bleriot monoplanes. The school is operated at the Hempstead Plains aviation grounds and is complete. A large supply of extra parts are kept on hand at all times, so that there is no delay in flying because of breakage. The course at the present time covers about six weeks and terminates when the student qualifies for his pilot license.

The monoplanes of the school can be seen in flight at the flying grounds every day that the weather conditions are favorable and they will demonstrate free of charge to any prospective purchaser who will take the trouble to visit their school. This is done that the buyer may see for himself that the machine will fly. This feature of the school has been the means of keeping the factory busy throughout the summer.

The facilities of the factory can be judged from the accompanying cut. The building has a capacity for twelve completely assembled machines without crowding, and a large trap door in the second floor permits a monoplane to be completely assembled and it can be taken from the building by simply removing the wings.

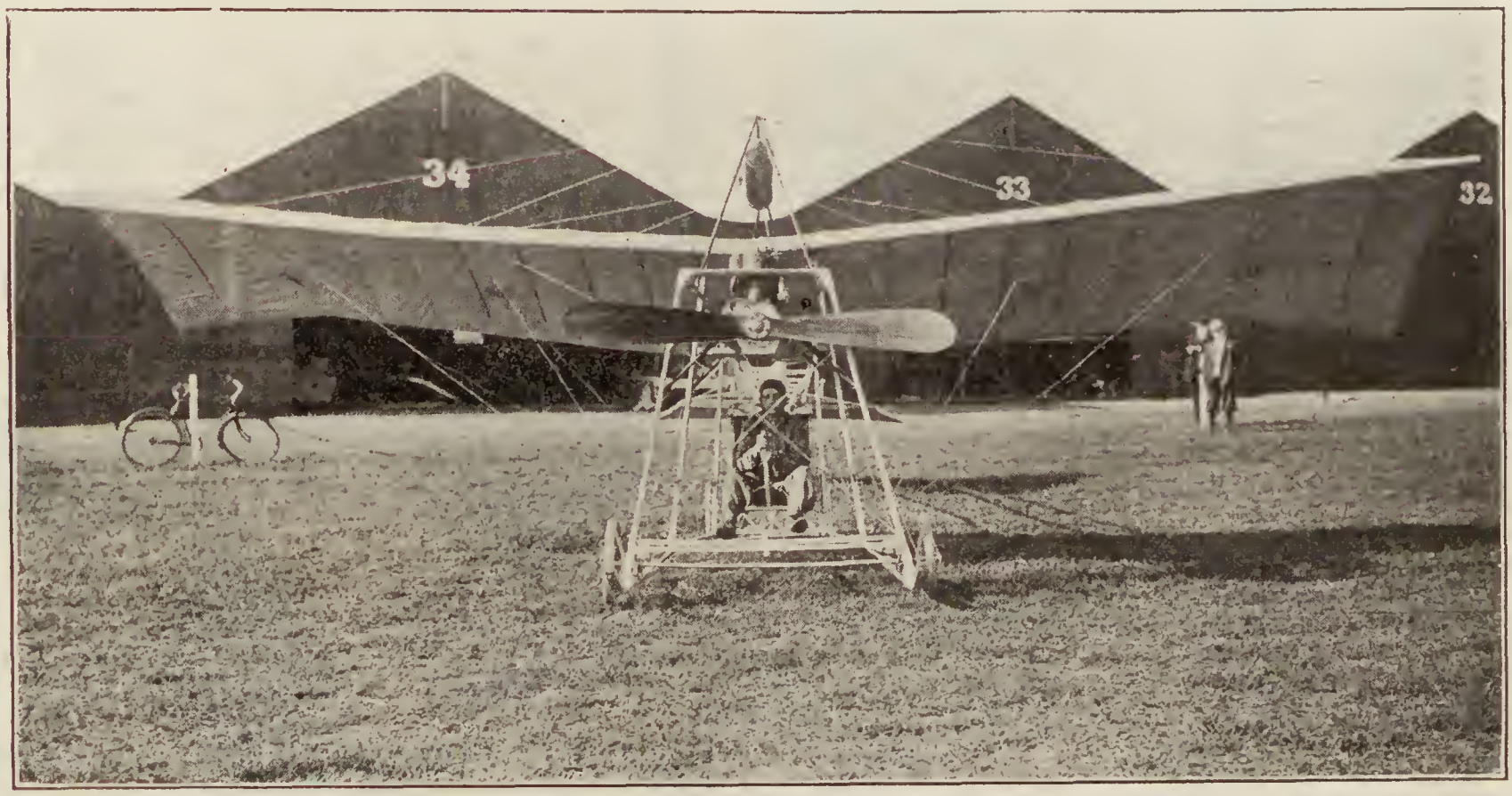
The success of the Bleriot monoplane and Bleriot types has made it one of the most popular aeroplanes in the world. Abroad there are scores of them in flight daily, and the sight of these monoplanes skimming through the air has resulted in heavy sales.



In this country this type of monoplane is well known, and there are owners of these machines in almost every State in the Union. A visit to the flying grounds of the school at Hempstead will satisfy the curious as to the cause of the popularity of this particular machine.

GLENN L. MARTIN, the well-known Los Angeles aviator and constructor, was lost for more than an hour in a fog 2,000 feet above Lake Michigan on August 24th. When two miles off the shore, Martin caught a glimpse of the red flash from a government lighthouse. This gave him his bearing and he landed safely a few minutes later in Roger's Park, the northern limit of Chicago.

TRADE TOPICS



Maximotored Train Type Monoplane

Maximotors Flying

New Britain, Conn., with only 34,000 population, is fairly a hotbed of aviation activity. The fourth Maximotor in the town is being placed in the tractor biplane of J. P. Thompson. The others went to Krasting, Nelson and Nolan.

W. K. Hamilton, a New Britain native, was the towns original birdman. Ever since his famous intercity flights, even the school boys have given up marbles and tops for gliders and model aeroplanes.

One New Britainite cleared ten times the cost of his whole machine in his first few weeks exhibition flying with his Maximotor.

"Lumina" Scores Success

In "Lumina" Aeroplane Cloth, The B. F. Goodrich Company have scored another undoubted success.

It was only to be expected that the combined experience of the principal European maker of aeroplane fabrics and of the oldest and largest American rubber manufacturing company should produce something out of the ordinary, and the new "Lumina" cloth at once forced its way into prominence, as is shown by the fact that at the recent New York Aero show both Wright and Curtiss exhibited "Lumina" covered aeroplanes, the Curtiss Hydro-Aeroplane purchased for the Russian Navy, and the Burgess Biplane ordered for the United States Army, also bearing testimony to the exceptional qualities of the new covering.

Made from the finest procurable long staple cotton, coated several times over with high-grade rubber solutions of various consistencies, and on one side again covered with aluminum, "Lumina" becomes to all intents and purposes wind and weather proof, and as long as the elements permit of flying at all, the aviator may rely with confidence on his "Lumina" covered pinions.

The making of a suitable fabric for aeroplane purposes involves several novel conditions.

The scantling of a plane is comparatively so slight that any warping or shrinking of the fabric will infallibly distort the frames, throwing them out of line and utterly upsetting the true direction of flight.

In "Lumina" all contingencies have been foreseen and provided for. "Lumina will neither shrink nor stretch. The rubber coating and aluminum covering are incorporated with the fabric, making it thoroughly impervious to all climatic influences, with the further advantages that it does not crack nor show dirt, while repairs may be readily executed with ordinary rubber cement and without disfiguring the fabric.

The illustration in the Goodrich advertisement on page 34, shows a dainty hanger issued by the company, a copy of which will be sent to any one interested. It is beautifully printed in colors.

"Lumina" cloth is made by The B. F. Goodrich Company, in their factory at Akron, Ohio, by special arrangement with the Continental Company, of Hanover, Germany, who have a world-wide reputation as makers of this class of goods.

"Lumina" is thus not an experiment, but a proven success.

In addition to "Lumina" fabric, the firm is maker of other fabrics and of all rubber aeroplane accessories, including special aero tires. The house of Goodrich is so well known that articles bearing their name are everywhere recognized as setting forth an international standard of quality.

The Burgess Monoplane

AFTER a number of unsuccessful attempts on the part of the local clubs to persuade American manufacturers to independently design and enter machines for the Gordon-Bennett race, a Cup De-

fender's Syndicate was formed in Chicago among the members of the Illinois Aero Club, which raised money sufficient to produce a racer.

A canvass of motor manufacturers quickly resulted in the selection of the Gnome motor, and the final purchase of one of the three 160 h. p. 14-cylinder Gnomes which have been manufactured by that company was made.

It was not so easy to decide upon the designer and builder of the racer, but W. Starling Burgess, president and chief designer of the Burgess Company and Curtis, was finally selected, and early in June preliminary drawings were made up. In all the designing work Mr. Burgess was constantly assisted by Greely S. Curtis, and when the motor arrived from France on August 3rd the aeroplane was ready for the installation of the power plant.

It will be noticed that the racer is a monoplane with enclosed fusilage and a wing spread of 130 square feet. It weighs, including motor, net, 775 pounds. The running gear was especially strong and adapted to the rougher fields of American tracts. The plane measures, fore and aft, about 22 feet and the spread of wing is 29 feet.

Very careful tests were made of all parts which went into the manufacture of the plane. The factory tests were corroborated by tests at the Boston Institute of Technology. The factor of safety in the air of five was figured on all wires and metal parts. As a final check as to its strength, the day before shipment two men were placed in the cockpit and two on the skids. The machine was then raised on horses from the wings at the points of the wire supports without any apparent give or strain.

The Wright-type wheel trucks, on which the plane is mounted in the picture shown, were installed for practice flights. These will be replaced by a single pair of covered wheels.

Count of Turin Flies

AMONG the members of the nobility who have become masters of the air is the Count of Turin, i a brother of the Duke d'Abruzzi and a brother-in-law of the Duchess d'Aosta, who flies at Buc with Maurice Farman.

Not long ago the count wrote a letter to his brother telling his that all he must have felt in his many explorations was as nothing compared to the sensation of flying through the air at a great height and seeing below, as it were, whole countries rushing along under one's feet.

He added that sailing or motoring, climbing mountains or searching for the poles, seemed poor pastimes compared with the satisfaction of feeling one's self master of the atmosphere.

It is rumored that the Count of Turin expects to obtain, from the King, permission to establish a regular service of aeroplanes between Sicily and Tripoli, stopping at Malta.

UPON receipt of the news of the death of Hubert Latham, the Paris office of the *New York Herald* cabled for details. Owing to the fact that the fatal accident happened in virtually unexplored regions, where the sole means of communication is by runner, it has taken several weeks to get the reply, which follows:

Brazzaville, via Dakar (undated).—At seven o'clock in the morning on June 25, M. Latham, accompanied by a native, was shooting on the right bank of the Chari River, near its junction, with Dahr Dalamet, close to the Gayes Rapids. He had wounded a rhinoceros and was about to finish off the animal, when his heavy calibre rifle burst.

He seized another gun from the native and fired, killing the rhinoceros. At this moment a buffalo, until then hidden in the tall grass, came into view. M. Latham, kneeling, fired again, but only wounded the buffalo, which charged and tossed him three times. The unfortunate young man gave one piercing shriek and fell dead.

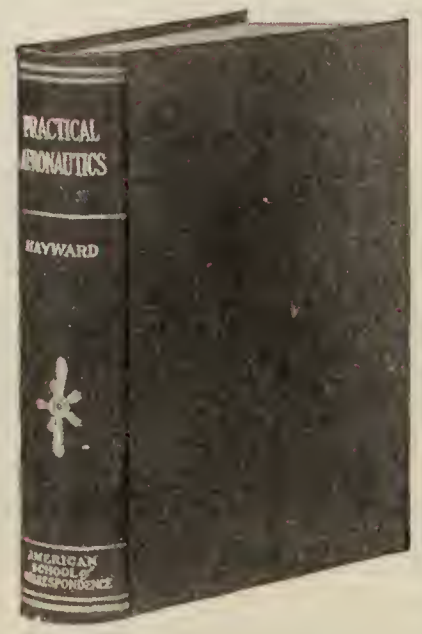
The body was brought to Fort Archambault the following day and buried there on June 30. Only a short time before the fatal accident, Mr. Hubert Latham was slightly wounded by a buffalo.

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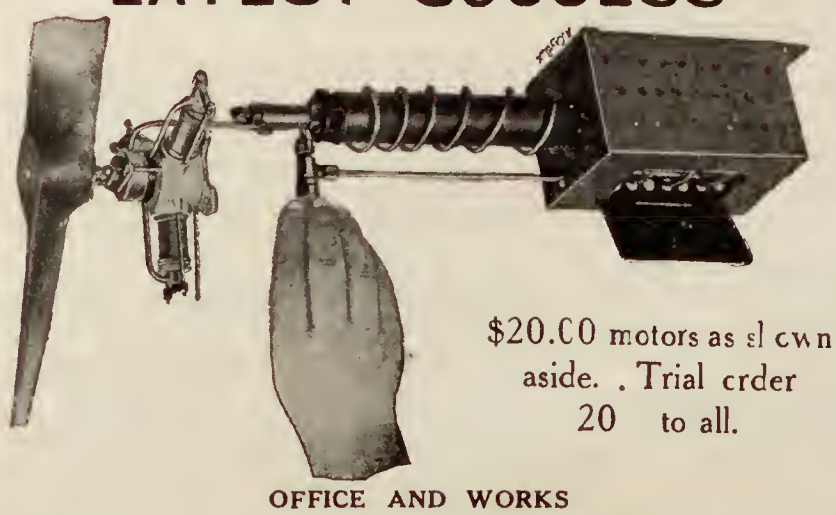
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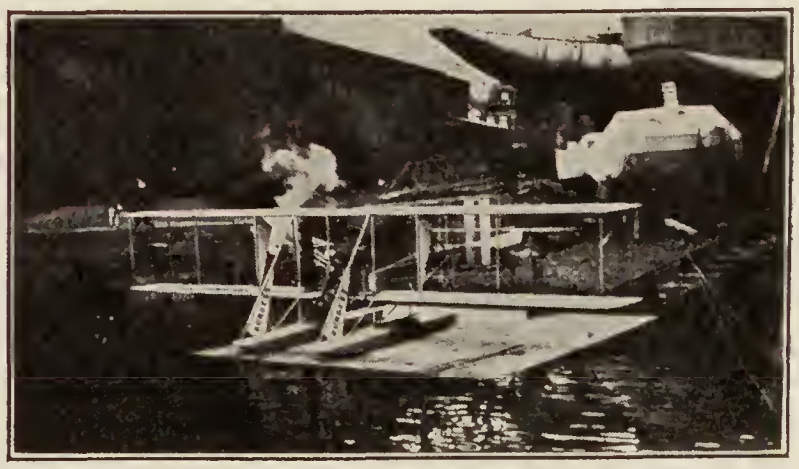


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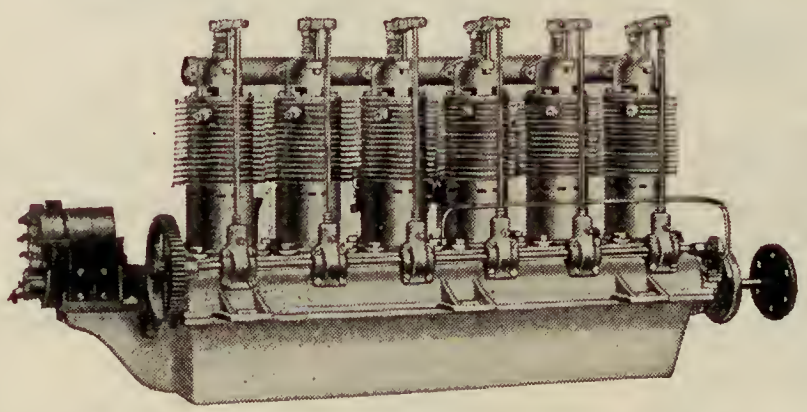
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Lieut. T. D. Milling	Phillips W. Page	U. S. Army
Clifford L. Webster	U. S. Navy (hydroplane)	

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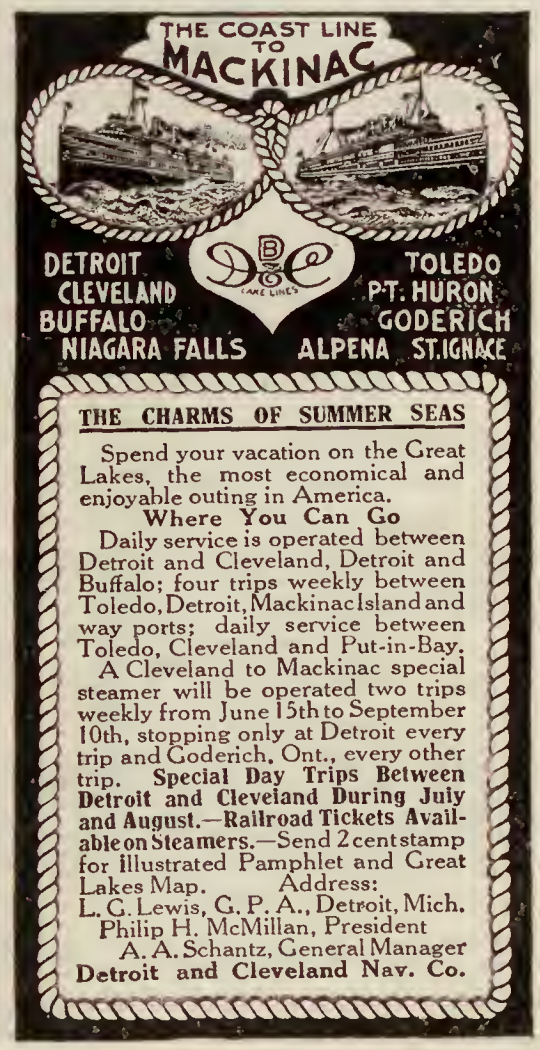
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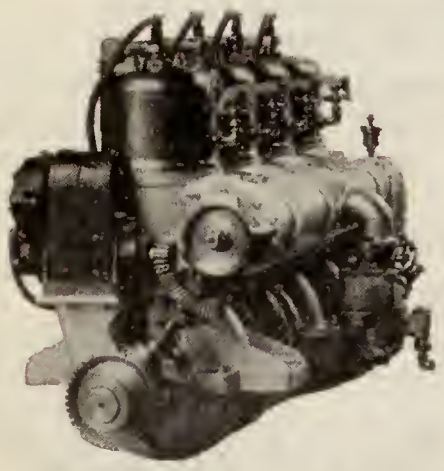
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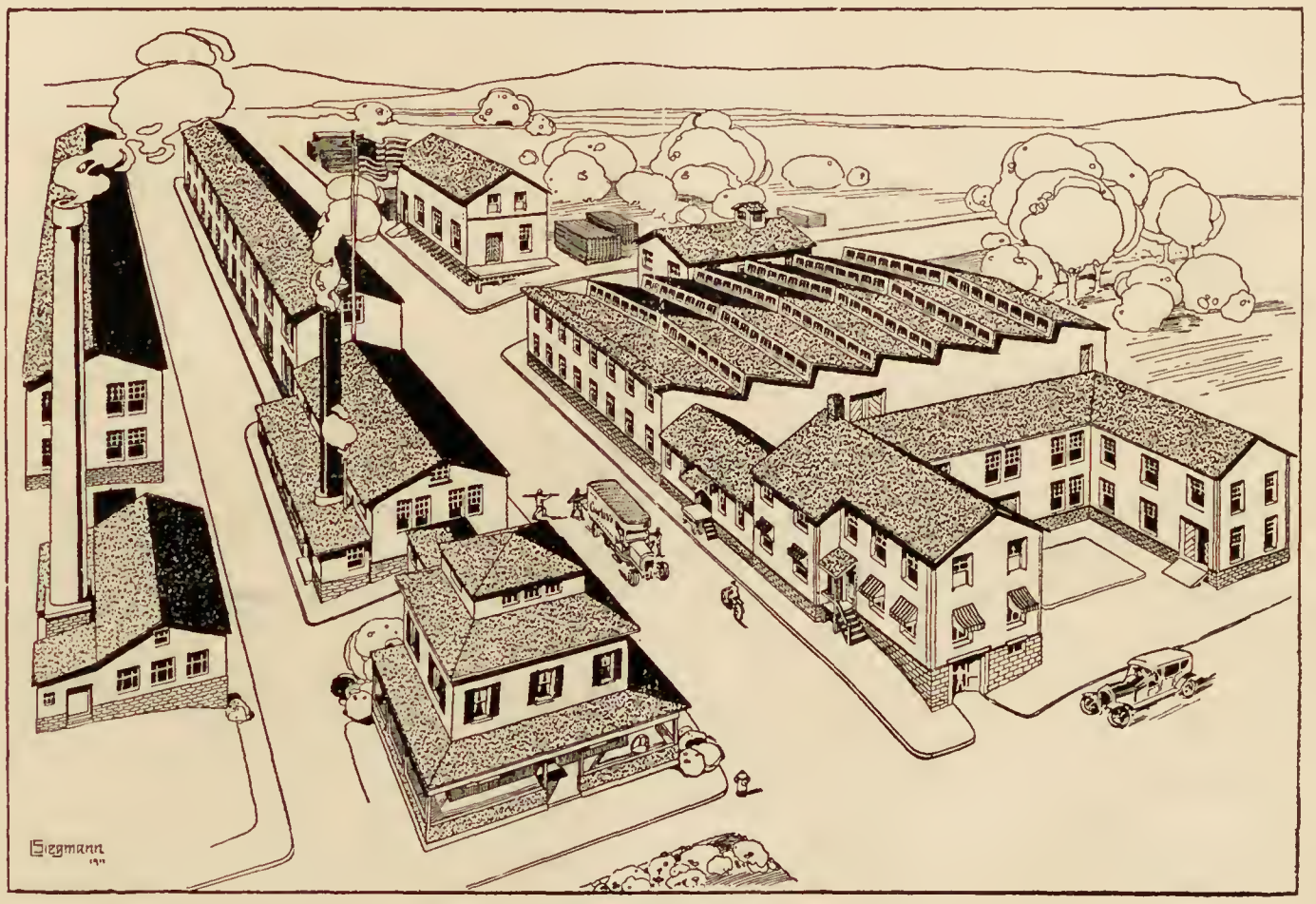
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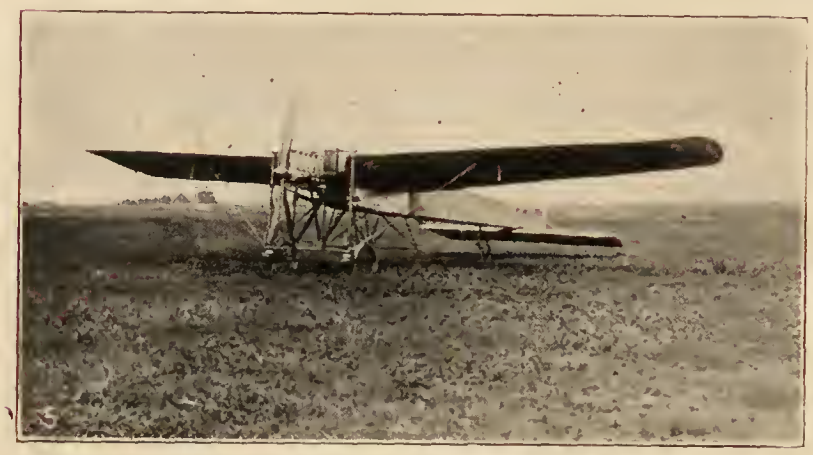
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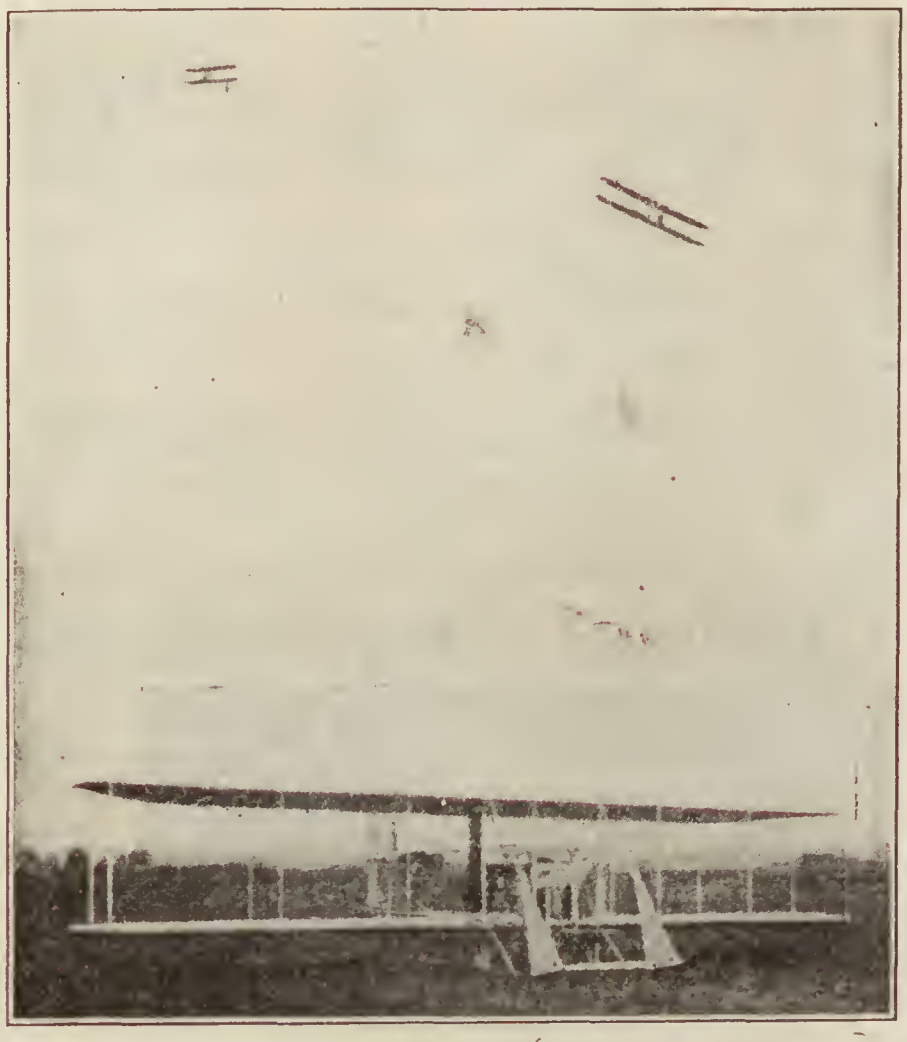
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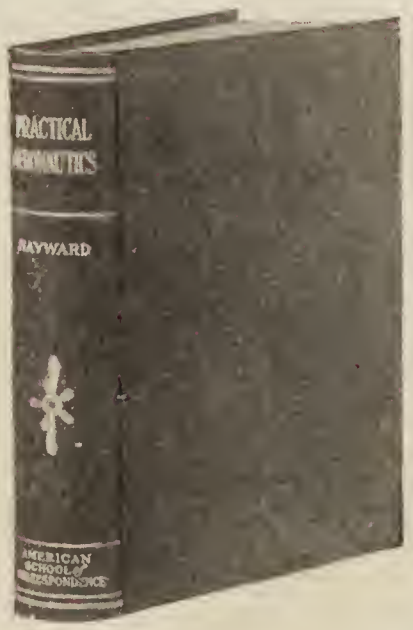
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The National Aeronautic Monthly

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Chicago Meets Fail to Equal Last Year's Contests

Hydro-Aeroplanes Draw Crowds to Grant Park

FOLLOWING the Gordon-Bennett aeroplane contest, the annual Chicago aviation meet opened on September 12th and came to a close on September 15th, with a record that failed in every respect to equal that made last year. Dissatisfaction seemed to prevail among the aviators themselves regarding the management of the meet, while the spectators were so few that their sentiments made little differenc.

The opening of the meet was marked by the death, on the previous evening, of Paul Peck, while the day before the close of the events Howard Gill was fatally injured in an accident in the air. The loss of these premier aviators is keenly felt.

The chief winners of the prize money for the four days flying at Cicero Field were Glenn Martin and Max Lillie. Anthony Jannus and DeLloyd Thompson were about tie for third place, with approximately $1,300 apiece.

Of the twenty-two entries scheduled for the Cicero meet, but fourteen actually flew. Of this number but five aviators won more than $1,000.

Maurice Prevost withdrew after two days of flying. Whether it was due to his lack of confidence in the officials or, as is asserted by some, to the unwise action of a clerk of the course is not known. After leaving Chicago Prevost wrote Mestach a letter, stating that in his opinion he (Mestach) was in no way to blame for the accident to Gill.

One thing is quite evident that, with the material at hand, the meet should have been far more successful than it was.

There was continual evidence of the breaking of the rules of the air without any word of censure from the management of the meet.

All this is to be regretted, as the mismanagement of meets, together with continual differences among the aviators, has a tendency to cause the public to lose interest in this sort of flying.

There has been much written and said regarding the contest in which Howard Gill met his death and George Mestach was injured. The accident occurred at twilight, and it is stated that both aviators expressed a desire not to fly in the gathering dusk. The fact remains, however, that they did fly. That this flight resulted in a fatality has stirred up considerable resentment against the active heads of the meet, and they have been severely criticised, as has the Aero Club of Illinois, whom they represented.

There is this fact that might be mentioned, although it is asserted that the committees in supposed control really were robbed of their authority; that on some of these committees were members of the Aero Club of America, representing the controlling body of aeronautics in America, and if this meet was so grossly mismanaged why was the meet permitted to continue? If the aviators lives were in constant danger from the manner in which the events were being run off, why was not the Aero Club of America officially notified and asked to take immediate action?

It is all very well for some of the "arm-chair" members of the A. C. of A. to sit back and shoot their inky bolts at the Aero Club of Illinois, but it looks as if the A. C. of A. is in the same position as that of the club which some of its members are condemning. The very same statements have been made concerning some of the officials of the Aero Club of America meets.

Of far more importance was the hydro-aeroplane meet held at Grant Park, along the lake front. This contest was the first of its kind ever held in America, despite the fact that America is the birthplace of the practical hydro-aeroplane and airboat. Europe has held

Cicero Field.

Aviator	Winnings	Aeroplane
Glenn Martin	$2194.88	Martin
Max Lillie	1877.79	Wright
DeLloyd Thompson	1387.17	Martin
Anthony Jannus	1316.41	Benoist
Horace Kearny	1088.72	Curtiss
George Mestach	930.99	Morane-Borel
Farnum Fish	918.29	Wright
C. L. Wiggins	631.27	Wright
A. C. Beech	441.39	Beech-National
Howard Gill	382.94	Wright
Maurice Prevost	368.18	Deperdussin
C. J. Sjolander	197.94	Curtiss-type
Earl Daugherty	114.03	I. A. C. Co.
J. L. Montero	100.00	Bleriot
	$11,950.00	

Grant Park.

Aviator	Winnings	Aeroplane
Anthony Jannus	$2687.35	Benoist
Glenn Martin	2659.36	Martin
Beckwith Havens	2170.59	Curtiss
Max Lillie	933.78	Wright
Horace Kearney	870.69	Curtiss
DeLloyd Thompson	670.14	Wright
Farnum Fish	639.88	Wright
Marcel Tournier	329.31	Nieuport
C. L. Wiggins	325.72	Wright
W. C. Robinson	300.33	National
J. R. Montero	258.94	Bleriot
A. J. Engle	188.24	Curtiss
J. C. Mars	15.67	Curtiss
	$12,050.00	

its score of hydro-aeroplane meets, but it has remained for the Aero Club of Illinois to stage the first one ever held in the United States.

Glenn Martin, Anthony Jannus and Beckwith Havens were the chief hydro-aeroplane operators who attained success in water flying. A. J. Engle, who flew a Curtiss hydro-aeroplane, met with misfortune at the beginning of the meet and was unable to participate. The Hamilton-Brooks hydro-aeroplane met with an accident in starting that incapicated it for further work, so that its aviator failed to share in the prize money.

On the day before the meet opened Glenn Martin, Horace Kearny, DeLloyd Thompson, Max Lillie, Farnum Fish and Anthony Jannus all made the twenty-five mile flight from Cicero Field to Grant Park. On the following day J. L. Montero and C. L. Wiggins also arrived at Grant Park via the air lanes.

Ignace Seminouk had a thrilling experience on the 19th, when his Hamilton-Brooks hydro was wrecked. In starting from the landing place the propeller was splintered, but Seminouk was not aware of this until the hot water from the radiator began to scald him. The shock had been so great that it severed the water connections of the engine, in addition to wrecking the rear of the plane. About a mile from shore the hydro began to sink. Seminouk held to the machine as long as possible, and when no part except the pontoon was visible he clung to that until help arrived.

Beckwith Havens also met with an accident on that day. He punctured his pontoon and was forced to race to shore, reaching it in a half-sinking condition.

During the entire meet at Grant Park the land flyers were out for duration. There were days, however, when the hydro aviators were the only ones who ventured to fly.

On Saturday, the 21st, Lincoln Beachey was a counter attraction, but despite this fact three hydro-aeroplanes were frequently seen in the air together.

Lincoln Beachey, as Mlle. Clarice Lavateur, set 150,000 hearts beating fast on Sunday, when, dressed as a woman, the daring Curtiss aviator flying at Grant Park put his biplane through every trick known to the trade of circus aviation. There was no doubt that the people wanted that kind of work, and they certainly received their money's worth. There were only 35,000 of this crowd "within the gates," so to speak, the rest enjoying the "free show." A party in a motor boat on the lake was so engrossed in watching Beachey that the boat overturned before they realized it and eight persons were rescued from drowning by the harbor police.

Much has been said about the hydro-aeroplane and it seems unfortunate that the first meet of this kind should have been lacking in entries. A good, stirring exhibition, with ten or fifteen hydro-aeroplanes and flying boats skimming over along the lake front, could have aroused much enthusiasm.

The three that did practically all the flying, however, deserved their success and were certainly representative of the hydro-aeroplane industry in this country. This meet would have been a splendid place to demonstrate the flying boat as a pleasure craft, if for no other purpose.

Let us hope that next year will see hydro-aeroplanes meets in this country on a basis that will entitle us to consider our development on a par with that of France.

Mexican Officers to Fly Monoplanes

LIEUTENANTS EDUARDO ALDASORO and Pablo Aldasoro, of the Mexican army, here joined the three other Mexican officers who are studying aviation at the Moisant School, on Hempstead Plain. With them came Francisco Alverez, a Moisant graduate, who has been acting as an aviation instructor for the Mexican government. John H. Worden, another Moisant monoplane flyer, who went to Mexico with Alvarez early in the summer, the latter said, was in active service with the federal army in its recent operations against the insurgents.

Miss Matilda Moisant, who gave up flying after her trip to Mexico last winter, has arrived in New York from her home in San Salvador, with her sister, Miss Louise Moisant.

Meet For Staten Island

THE Aeronautical Society of New York is planning for an aviation meet on Columbus Day, October 12th, for the benefit of the sailors of the United States fleet which will be in the harbor at that time.

As there are many of Uncle Sam's "bluejackets" who have never seen an aeroplane in flight, this meet should prove an enjoyable entertainment for them.

The meet will be held on Staten Island at the new flying grounds of the Aeronautical Society at Oakwood Heights. The field is four miles square and quite level, and is the largest aviation field in the limits of New York City. The field is located near Great Kills Bay and is admirably located for hydro-aeroplaning.

It is expected that the exhibition, which will be the first ever held on Staten Island, will be participated in by all the leading aviators in New York.

One of the features of the meet will be a parachute drop by Rodman Law from a Wright biplane, which will probably be piloted by Harry Bingham Brown. Brown is being ably managed by A. Leo Stevens, the well-known aeronaut.

Weymann Makes Record Hydro-Aeroplane Flight

Aviator Covers 375 Miles in One Day

BY flying from Antwerp in Belgium, to Vernon in France, in a single day of flying, Charles Weymann, former holder of the international aviation championship, set a world record for flight in a hydro-aeroplane when he covered in a single day a course of 375 miles. He would have travelled much further if he had not been the victim of an unfortunate accident which rendered the machine useless for further flying that day.

The flight was made on September 17th, in a Nieuport hydro-monoplane, equipped with a 100 h. p. engine In addition Weymann carried his mechanic as a passenger and thereby established a new record both for distance and for distance with a passenger.

Weymann, who had been taking part in the hydro-aeroplane meeting at Tamise, on the Scheldt, left Antwerp shortly after 6.30 in the morning, with Melsay, his mechanic, as passenger. He intended to follow the Belgian and French coasts as far as the mouth of the Seine, and then proceed up the river to Paris. A slight mishap to his machine, however, caused him to lose several hours at Dieppe, with the result that he was much later than he expected in arriving at Havre.

It was not until he reached Vernon, however, that an unfortunate accident caused him to abandon his flight. Just as he was about to alight on a small arm of the Seine, he noticed a stake used for tying up a fisherman's boat emerging from the water directly in his path. Mr. Weymann swerved rapidly toward the river bank so as to avoid the stake, and one of the wings of his machine struck a tree and was smashed. The hydro-aeroplane fell into the river, but the aviator escaped uninjured and proceeded to Paris by train.

After leaving Antwerp, Weymann made his first stop at Boulogne, where he alighted on the sea close to the Casino, in order to replenish his supply of gasolene. He hoped to fly from Boulogne to Havre without a stop, but was compelled again to alight in Dieppe harbor to effect repairs.

The aviator reached Havre shortly after 2 o'clock in the afternoon, and left again almost immediately for Trouville, where he landed in front of the Casino. He afterwards followed the course of the Seine to Rouen, which he reached at 4.15.

Mr. Weymann passed through Rouen at a high speed, descending gradually toward the water until he dipped beneath the suspension bridge. Then, planing down still lower, the hydro-aeroplane passed underneath the main arch of the Point Bojeldieu, which is only six metres high and thirty metres wide. After passing beneath two more similar bridges, Mr. Weymann rose again to a considerable height, which he maintained until he alighted at Vernon.

The Chicago Syndicate Cup Defender

Early in July Mr. Norman Prince, representing the Syndicate in Chicago, visited Marblehead for the purpose of finally closing an order with the Burgess Company for the design and construction of the cup defender. For more than four months preceding overtures were made in various forms by the Aero Club of America and individual clubs and members looking towards interesting American manufacturers in the construction of a racing machine.

Great pressure, however, was brought to bear upon the Burgess Company to design and build an aeroplane suitable for the 160 H. P. Gnome power plant which had been purchased. Consideration of friendship finally prevailed upon Mr. Burgess and the Burgess Company agreed to design and build the aeroplane in six weeks, but at the same time took no responsibility whatever with regard to the furnishing of the aviator either for the test flights or for the race.

This work was done at a great sacrifice to the company at this time of the year, the busiest one in a really very short season of activity. However, the machine was turned out and delivered within the time specified and shipped to Chicago with a large quantity of spare parts, also furnished. At the request and placed himself at the disposal of the committee there without recompense, remaining in Chicago until after the race.

When the machine arrived, there was at once a question as to who should drive it. No definite arrangements seem to have been made and conditions were aggravated by the fact that contrary to the Company's advise the Wright system of control had been installed. After a number of days' delay it was finally decided that Mr. Glenn L. Martin, of Los Angeles, would undertake to drive the machine. He, with a numberof others interested in aviation, of course, immediately began to criticise certain details of design and construction. The use of single wires with a factor of safety of over six was criticised, and at the same time the large wing surface, 130 square feet, was said to be too large for the horse power. Some did not like the landing gear and others thought the tail was incorrectly designed and so on.

Mr. Burgess has designed seven distinct types of aeroplanes in the last four years, every one of which has been sold to and flown by the purchasers successfully. The last previous design was the tractor biplane built for the United States Signal Corps which passed its entire tests, including climbing two hundred feet a minute and landing and leaving plowed ground without the slightest difficulty, even though other standard machines in this country ordered under the same specifications required from one to three months of adjustment and correction before acceptance.

Naturally when the request was made that smaller wings be furnished, the company believed that this was contrary to good judgement and was reluctant to aid in any changes made by those who perhaps lack the experience and skill which has

been evident in the Burgess products. Small wings were hastily put together in Chicago to meet Mr. Martin's requirement, even though the large wings had never previously been tested out. If it had been possible to thoroughly train a man with large wings the question of smaller wings would have been, of course, in order, but with the horse power furnished the original design was by no means excessive in amount of surface and limited time naturally prevented the highest possible development which can only be reached by experiment.

In the meantime day after day passed in Chicago without any real work being accomplished, other than racing back and forth between Chicago and Clearing and the exchange of endless dissertations on racing by so-called experts.

The aeroplane arrived on August 20 and from that until the day of the race was not actually tried out, although the motor was found to be entirely satisfactory. The Burgess Company finally built a small set of wings, extra propellers and shipped sufficient spare parts there to build an entirely duplicate machine should it have been necessary.

The real difficulty in the whole episode is boiled down to three general criticisms.

First.—The lack of any real support by the Aero Club, looking towards the construction of a cup defender. As usual the Aero Club was quite willing to encourage others to spend their money, but actual support was lacking.

Second.—The disqualification of the best flyers in this country at a time when the choice of an aviator was quite as important as the choice of a machine.

Third.—The construction of an aeroplane at the eleventh hour without any arrangements for the training of the aviator in the two weeks which remained between the date of delivery and the race.

The relations between the leading members of the Syndicate and the Burgess Company have been most friendly and it is with the sincere regret of all concerned that the machine was not actually in the race.

Burgess Company and Curtis.

Four More Dirigibles For France

THE rapid growth of aeronautics, as one of the military arms, among the European nations is giving the industry a tremendous impetus abroad. Not only are all the big aeroplane factories working to their capacity, but the big balloon dirigible builders are being called on more to turn out additional dirigibles.

In addition to the tremendous fleet of aeroplanes possessed by France, that country has ordered four additional dirigibles. The specifications call for four dirigible balloons of the non-rigid type and must be capable of a speed of 43½ miles an hour. It is planned to arm them with batteries of light machine guns.

Barri Wins in a Curtiss

The highest score for navigating at the recent hydro-aeroplane meet at Tamise, Belgium, in which there were eleven competitors, was won by Barri, operating a Paulhan-Curtiss hydro-aeroplane. Barri also won first prize for the best self-starting device for a motor.



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Aviators at Army School (left to right) Lieut. Graham, Lieut. Foulois, Lieut, Milling, Lieut. Geiger, Beckwith Havens, Capt Hennesy

THE AERO CLUB OF PENNSYLVANIA



Room C. Bellevue-Stratford Hotel

Philadelphia, Pa.

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OFFICIAL NOTICE.

The stated meetings of the club are held in Room C, Bellevue-Stratford Hotel, on the first Friday of each month at 8 P. M. Visitors are always welcome.

C. P. WYNNE, Pres.

George S. Gassner, Sec'y.

CLUB NOTES.

Several of our members attended the international race in Chicago.

Some good flying has been done lately by our members. J. B. McCalley, of Harrisburg, set a new altitude record for Pennsylvania while flying at the Allentown Fair. He reached a height of more than 10,000 feet. He flies a Curtiss biplane and gave Allentown the finest exhibition of flying that it has ever seen.

Grover C. Bergdoll, attracted attention on several days during the Horse Show, at Bryn Mawr, by flying from Eagle Field to the Oval while the show was in progress. On September 9, he successfully passed his F. A. I. license requirements with Messrs. Wynne, Gassner and Brown as the official observers.

Marshall Earle Reid and Lieut. Com. H. C. Mustin. U. S. N., are planning a hydro-aeroplane trip from Cape May to League Island Navy Yard early in October. The distance is nearly ninety-five miles and if successfully accomplished will establish an American record for a distance flight in a hydro-aeroplane with a passenger.

Arthur T. Atherholt, former president of the club, and a licensed F. A. I. balloon pilot, has been selected as a member of the American team to represent this country in the Gordon-Bennett balloon race which starts from Stuttgart, Germany, on October 27. Mr. Atherholt will sail with other members of the team, from New York on October 10th. We trust that good fortune will attend them all and that our Aero Club of Pennsylvania member may be instrumental in bringing the Coupe Internationale des Aeronautes to America in 1913.

New Monoplanes on Long Island

ONE of the flying schools on Long Island that is attracting attention is the Sloane School of Aviation, which offers instruction on the speedy Deperdussin monoplanes and the Caudron monoplanes as well.

One of the new machines which has recently arrived at the school is a passenger-carrying "Dep," of the type which holds the record for continuous flight between Paris and London. It is fitted with comfortable seats and lockers for carrying small packages and lunch boxes. The construction work on the machine bears out the statement that it is one of the finest aeroplanes in this country. It is equipped with a 60 h. p. Anzani engine.

A second Caudron has recently arrived at the Sloane hangars and, while it is quite small, it is remarkably speedy. Equipped with a 45 h. p. Anzani, it is capable of making 83 miles per hour. The Caudron is said to be very stable and efficient.

W. Leonard Bonney has been flying one of the Caudron monoplanes at exhibitions in the West and has been very successful. Everywhere the machine has flown it has created enthusiasm among the spectators. The machine is painted blue and attracts unusual attention because of its color.

Among the pupils at present at the Long Island school is P. H. Reid, of Montreal, who will be the first Canadian to earn a pilot license.

J. Guy Gilpatrick recently graduated from the school and is now flying a "Dep." He is only sixteen years old and his excellent work on the monoplane lead critics to believe that he will become one of the best pilots in the country.

Showing their confidence in the future of aviation, the Sloane Company is about to open a winter school of flying at Los Angeles, Cal. The field and hangars have been secured and are within a twenty minute walk of the center of the city. The office of the Sloane Company will be established at 210 Merchant's Trust Building, Second and Main Streets, Los Angeles. The telephone call of the Los Angeles office is Maine 3674. The office is now open and in charge of a representative. By calling this number on the telephone you can secure immediate and detailed information regarding the winter school.

An Analysis of the Forces of Flight

(EQUILIBRIUM)

By George A. Spratt, Jr.

(Final Paper)

A FORCE acting in a single line against a free body impresses the body with, or without, causing rotation, according as its direction does not, or does, pass through the centre of weight.

Every body that is free in the air is acted upon by gravity, and the reacting pressure of the resisting air, and each of these forces may be represented by their resultants. The poise and the course of the body must be considered in its relation to the direction and the location of each of these resultants, since the direction and location of the pressure resultant is peculiarly determined by the surface the body presents.

The resultant of gravity always acts from the centre of weight of the body toward the centre of the earth.

The principles underlying the location and direction of the pressure resultant has been shown in the former papers. Briefly restated, this resultant is normal to the surface at the point of its intersection with the surface, which is the point upon the surface commonly accepted as the centre of pressure. In the circularly arched surface, it always passes through the common centre of the radii, and this point is the centre of frictionless pressure upon the circularly arched surface.

There is, probably, no better simple way of illustrating how the poise and the course are governed by the relative positions of the centre of weight, centre of pressure and the surface, than by releasing upon the air light bodies that are definitely proportioned, since each of these elementary parts are fixed structurally.

Model bodies for illustration may be made with surfaces of paper, and with a light wood shaft along which a lead weight is adjustable, and, with fine thread, outrigged so that the weight centre of the whole is brought to a desired point.

The surface presented by such models, however, is a longitudinal section of a cylinder, and its descent must be viewed accordingly, while the illustrations to be given here, preferably, represent sections of a sphere and a frictionless pressure. It also would be more desirable to consider only two opposing forces, but here, it must be borne in mind, that when a force acts in some other line than gravity, such as the inertia of rotation, inertia of glide or an encountered side current, or when a propelling thrust is purposely considered, the resultant of such force,or forces, taken with gravity, is obeyed as is gravity when acting alone. The results here recorded have been verified by another method of testing, in which all possibility of confusion with such complicating forces has been eliminated.

It might be noted here in passing that when a compound surface is considered, the resultant of the whole is to be taken as is the resultant of the single surface here used.

Let figure 1 represent any section of a sphere in which the centre of weight coincides with the centre of pressure. Euqilibrium of poise is neutral in these bodies, for there is no couple possible. They will descend with the angle between the surface and the horizon unchanged from that given them when released. The model verifies this in so far as theory is met in its construction.

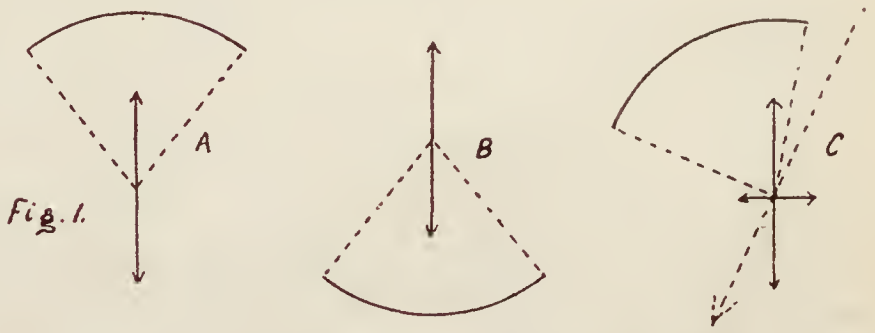


Fig. 1.

At **A** and at **B** the surface is shown with its chord parallel with the horizon. When in this poise the pressure resultant coincides with gravity, action and reaction are contrary, and the descent is vertical.

At **C** the direction of the pressure resultant is not contrary to gravity, and in consequence gravity is resolved into a vertical and horizontal component. The descent is a glide at such an angle that the pressure resisting horizontal advance will equal the horizontal component of gravity.

Let figure 2 represent any section of a sphere in which the centre of weight is at some point other than coincident with the centre of pressure.

At **A** the centre of weight **o** is shown between the centre of pressure **x** and the arc of the surface; at **B**, beyond the arc of the surface; at **C**, to that side of the pressure centre opposite from the arc; at **D**, so placed that a line passing through the centres does not pass perpendicularly through the centre of the surface, in which case the descent must be a glide. At **A**, **B**, **C** and **D** an unstable poise is shown. At **A′**, **B′**, **C′** and **D′** the poise is shown when equilibrium has become established.

Figure 2 evidences the fact that the surface may precede the centre of weight, may lie between the centres, may follow the centre of pressure, or may lie outside of the line that passes through the centres. It may be noticed here also that if a line projected through the centres, when they do not coincide, passes perpendicularly through the centre of the surface, the descent will be vertical.

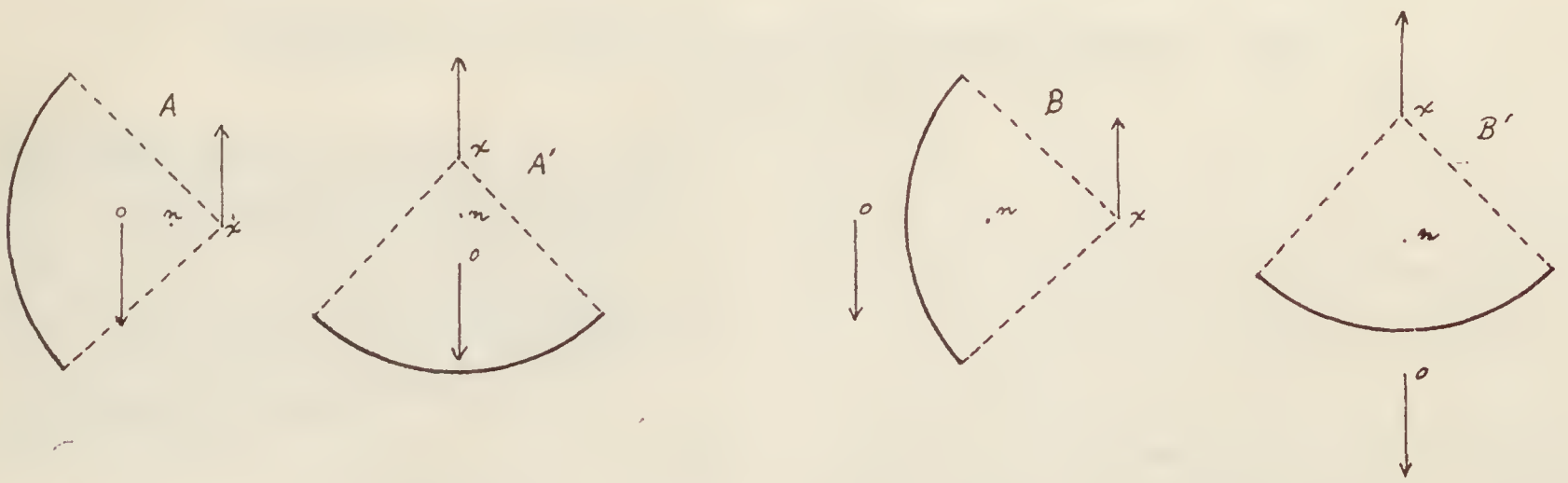


Fig. 2.

The foregoing should be true regardless of the length of the radius, and every test verifies such belief. The plane, when considered as a very small section of a very large sphere, yields to the same analysis, and figure 2 can serve to illustrate the plane as well as the arc by mentally altering the proportions.

Herein lies the greater advantage of the arc, not that it yields a lifting pressure that is absent in the plane, but that the pressures are brought to such a state of concentration that it is mechanically possible to form definite couples between the weight and pressure.

A plane in the shape of a circular disc, when released horizontally upon the air, presents a surface, a centre of weight located at the centre of the disc, and a centre of pressure located at a point infinitely beyond, and perpendicular to the centre of the surface presented. It is poised upon a frictionless bed and sensitive to a marvelous degree. The least disturbance in the distribution of the pressure causes a variation from the horizontal poise, a horizontal component of gravity and a glide. The first change in the pressure distribution produces a couple that throws the centre of pressure off from the vertical line that passes through the centre of weight. Readjustment is found in the glide, for as the speed of the glide increases, the angle of incidence lessens and the point of intersection of the pressure resultant and surface moves toward the advancing edge, which causes a contrary couple. This rotates the body again toward the horizontal. When the horizontal is reached the poise is the same as at the time of release, but the body is now possessed by inertia originating from two distinct causes, and producing two distinct results. It is gliding and it is rotating. The inertia from gliding acts as a new force horizontally applied, the resultant of which taken with gravity must now be obeyed as was gravity when acting alone, and the centre of pressure must lie with the centre of weight upon this resultant before the couple which is causing the rotation ceases. The glide continues until the inertia of advance has been spent against a positive angle of incidence that is produced by the couple. The couple will continue the rotation until the surface is perpendicular to its course, for then only does it cease to be. Before it ceases to be the course of the disc may become horizontal, or even ascending.

If the inertia of advance has been spent against the positive angle of incidence before the couple has overturned the disc, a new glide starts in the opposite direction to the former. In this case the whole descent is a series of darting, rocking vibrations of about equal amplitude about a vertical line. The descent, though not straight, is vertical as a whole.

In the descent of a narrow strip of paper the rotation carries the plane of the surface past the vertical. The former upper side is presented to receive the current as a new glide starts. The pressures are, therefore, controlled from a new centre, which, as before, is located at a point infinitely beyond and perpendicular to the centre of the surface presented. The former conditions are, therefore, repeated and the new

glide and rotation are in the same direction. The descent is a progressive series of such dives, along which the paper moves with a backward rolling appearance.

In a structure designed to embody this theory the pressures are not frictionless, head resistance is present, and the curvature is not perfect. From each of these sources a retarding pressure arises, which acts parallel with the current at the points of its origin, which must be considered as a component part of the pressure upon the whole.

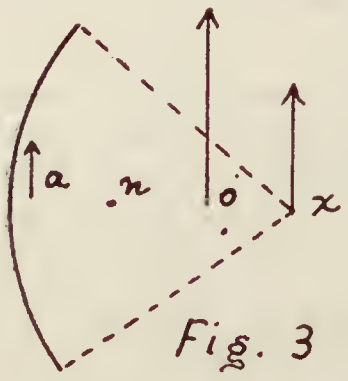


Fig. 3

The effect of this force is illustrated in figure 3, which represents the model with its chord vertically disposed. The vertical component of the frictionless pressure is shown at **x**. The resultant of the friction pressure at **a**, and the resultant of these combined may be represented at **o**. An increase in the friction pressure **a**, causes the point **o** and also the centre of rotation **n**, to lie nearer to the surface. When the centre of weight coincides with the point **o** no couple exists.

The effect of this force is illustrated in figure 3, which represents the model with its chord vertically disposed. The vertical component of the frictionless pressure is shown at **x**. The resultant of the friction pressure at **a**, and the resultant of these combined may be represented at **o**. An increase in the friction pressure **a**, causes the point **o** and also the centre of rotation **n**, to lie nearer to the surface. When the centre of weight coincides with the point **o** no couple exists.

It is quite evident that the force represented by **a** constitutes a factor in establishing the point of intersection of the resultant pressure with the surface, which is the point upon the surface commonly accepted to be the centre of pressure. Therefore, locating this point and its travel upon a rigid model surface, does not give absolute assurance that correspondence will be found in an enlarged copy of the form of the model when made of different material, especially if that material is flexible under the pressure to which it may be subjected.

Because of the complex origin of the force represented by **a**, its value varies with the angle of incidence, and may vary from other causes also. By proper construction, however, its effect upon an aeroplane can be kept easily within control.*

Pressure from a greater area of surface can be centred from a longitudinal section of a cylinder than is possible from a section of a sphere.

Such a surface presents a plane and an arc in perpendicular arrangement, or two arcs of greatly differing radius lengths may be likewise considered. The perpendicularity of the axes permits a free response to the pressure effects peculiar to each form of surface they represent, in that the axis of each is an axis of rotation to the other, and also in that one axis is much longer than the other, it becomes a controlling factor to the other, for the pressure causes, or tends to cause, the longest axes to advance perpendicular to the course. Pressure exerted upon the axis perpendicular to each of the other two effects the rotative value of the pressure upon one or both of the other axes.

Applications

Under this heading the theory advanced is briefly applied to the construction and flight of the bird and the diptera in order that attention may be directed to those points where conformity is to be looked for.

The bird and its wing is far more than a flying mechanism just as a quadruped is far more than a locomotive. The wild horse upon the prairie, in a unit, represents the producing plant, the repair shops, the surveying forces, track construction forces, the watchmen and engine crew, and the vast office and field force that sees to obtaining fuel and water and all other materials for maintaining the organization; in fact, the whole system and its management with the added great convenience that, if business is dull, a new region can be occupied at the speed rate of the rolling stock. On the other hand, the locomotive represents an exceedingly small part of the anatomy of the horse, a few principles that, after acceptance, are again divested of much in order that concentration to the purposes of man may be gained. In order that he may possess the jewel, as ever, he has excavated and washed away tons of less desirable material, and then with labor and patience refined and polished.

The fundamental principles of flight lie within the wing, as does the lever in the leg, but the wing is not that principle. To take the form of the wing and apply it to the aeroplane is as crude logic to follow as to take the form of the leg and apply it to the locomotive. To excel nature in so doing could hardly be expected. The wing embraces so much more than a perfect application of the principles that those principles are obscured unless the observer has a clear conception of them.



Fig. 4

Let figure 4 represent a gull. At **A** the section of the curved portion of the wing is shown with its relative position to the centre of weight. At **B** is shown

*A few of the tests that have been made with a glider were reported in the March, 1909, number of "Aeronautics," page 132. Motor-driven flights have since been made over a small field, which have given every promise of inherent stability, combined with a simple design and a simple control, for which broad claims for patent have been filed.

the double curve so well marked in the long-winged sea birds. In all birds, and in bats, the arched portion of the wing is carried high. It is so with the elytra of the beetle. The friction pressure represented by **a**, figure 3, is great in the wing, for bone and muscle are housed within, and consequently the height of the arc of the wing above the centre of weight is less than the radius of the curvature. The points **o** and **n**, figure 3, lie proportionately near the wing surface.

By lowering this portion of the wings the centre of pressure **o** is lowered relatively to the centre of weight, and a couple results which causes rotation forward, likewise raising the wings causes rotation backward. By such adjustment the course is deflected downward or upward without invoking any additional surface pressure or resistance.

The flattened extremity of the wing partakes much of the nature of a thickened plane. In gliding the extremities are brought low in order that no couple may result from the pressure against them, and when the wings are raised or lowered this pressure increases the value of the couple. Let it be noticed that, when a couple is formed either for the purpose of directing the course or otherwise, it should be, and is, formed upon the line representing the resistance to advance, and, therefore, the motion of the wings, under ordinary conditions, is upward and forward, or downward or backward. These adjustments are very apparent in the gull, as he leisurely wanders over the water in search of food, especially so if the breeze is fitful.

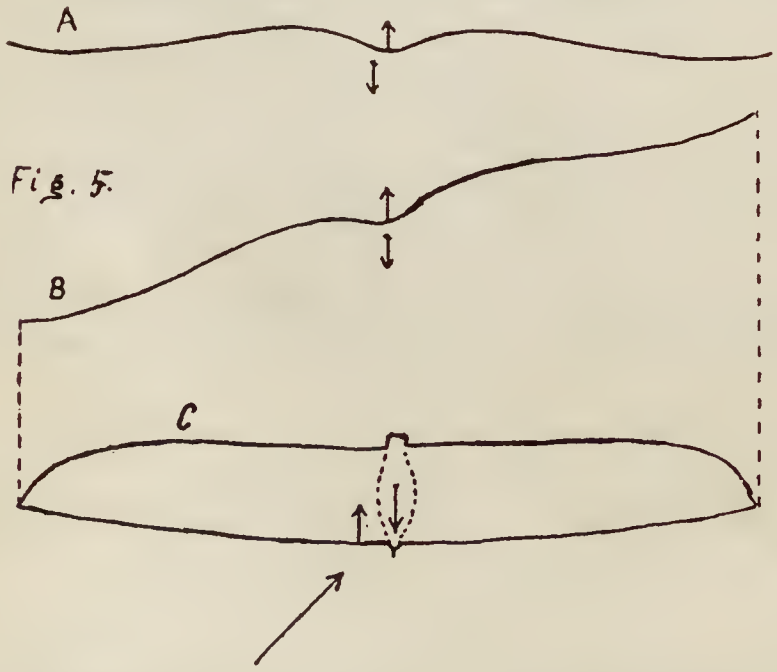


Fig. 5.

By extending one wing and shortening the other, which in effect is to draw or swing the body, and therefore the centre of weight toward the other wing extremity, see figure 5**A**, a couple results which rotates the whole, causing the shortened wing to descend and the extended wing to rise. Gravity is resolved as a result of this poise, see figure 5**B**; a horizontal force propels toward the lowered wing and the course deflects in response. The resultant of the head resistance, which formerly was perpendicular to the forward margin of the wings and passed through the centre of weight, has now moved onto the lowered wing, since the course has become deflected with the lowered wing more or less in the advance. A couple results, which rotates the whole about the vertical. See figure 5**C**. Therefore, again, the bird directs its course to right or left, without presenting any surface or resistance, for that purpose.

The pressure always tends to place the longest axes perpendicular to the course, and always does so when the centre of weight and centre of the surface coincides, or when a line passing through the centres of weight and pressure passes perpendicularly through the centre of the surface.

A surface circularly arched to include the proper number of degrees developes a greater lifting pressure than a surface of any other form. It is the most stable form when properly used. Very wisely that portion of the wing nearest the weight centre of the bird, and anatomically the most firmly braced to the body, is the most nearly circularly arched, and the most deeply curved. As the distance from the body increases the wing has increasing freedom of motion, and the curvature uniformly merges into a flattened extremity that, in some wings more than in others, is capable of presenting a concave, plane or convex surface.

The effect peculiar to that curvature near the body is obtainable, however, throughout the whole extent of the wing by establishing the same relation of curvature in the path through which the wing is struck, as has been shown experimentally in a former paper, or, in this same manner, the effect peculiar to the circular arc may be obtained in the stroke throughout the wing.

The amount of pressure upon a surface is determined by its velocity relative to the air. It is the velocity of the wing in contra-distinction to the velocity of the body that sustains and propels. The stroke of the wing must be observed, not only in its relations to the air, but also in its relations to the centre of weight.

The stroke of the pigeon's wing, as the bird changes its place in the flock while feeding, is a downward forward curve, the chord of which is almost horizontal. The velocity of the bird is not sufficient for support, the curved portion of the wing, because of its fixed attachment to the body is of little value, but support is obtainable from such stroke of the extremity. Excepting that the wing is brought back flexed the extremity describes a flattened ellipse. As the velocity of the body increases, and the curved portions increasingly yield support, the stroke changes to a circular path about the centre of weight in the reverse direction to that of a carriage wheel, gradually becoming vertical as the pressure from the flattened extremity is increasingly utilized for thrust. When that velocity is attained at which the desired amount of weight is carried by the curved portion, the stroke becomes cir-

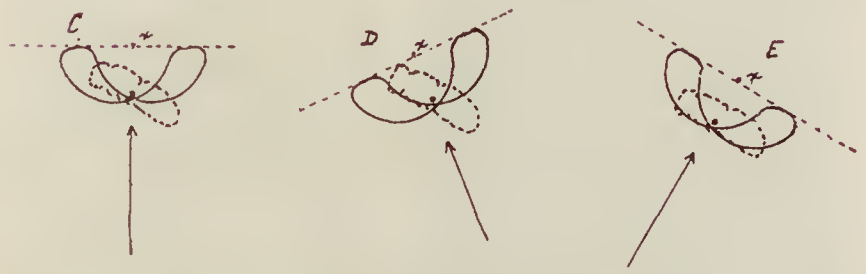
cular in direction as the carriage wheel revolves and gives to the bird the appearance of rowing. The wing extremity now yields thrust sufficient to maintain that desired velocity.

The path described through the air by the wing extremity is such as will produce the desired relation of curvature. If the path is a straight line, there is rotation of the wing extremity; if the path is arched, the resultant pressure of the stroke bisects the arc and its chord and passes through the centre of weight.

This is more clearly illustrated in figure 6, in which this theory is applied to the flight of the dyptera. Here the dotted line represents the arc described by the extremity of a wing of this type. The arrow shows the direction of its movement along the arc. At **A** the advance stroke is shown, and at **B** the return stroke. The plane is set at a slight positive angle to its path and the perpendicular lines from its leading half represent the convergence of the resultant pressure to a common centre **x** from consecutive points along its path. The forward edge of the wing is shown leading in the advance stroke **A**; the rear edge as leading in the return stroke.



Fig. 6



In the two figures **A** and **B**, the centre of convergence **x**, which is the centre of pressure for the stroke, occurs at opposite sides of the centre of the arc (x') described by the path. If the advance and the return stroke are to have a common pressure centre, the path of the advance stroke must be in advance of the path of the return stroke. In so making them they describe a figure eight, as shown at **C, D,** and **E.**

It is possible, therefore, that from such wing motion the fly can present a centre of pressure and a centre of weight whose relative positions can control the poise and the course of flight. At **C** a position of hovering is shown. Here the centre of weight is below the centre of pressure, and both are on the same line of gravity; therefore there is no couple. If the pressure is greater than the weight, the body rises vertically; if less, the body descends vertically; if they are equal, the body hovers. Inertia absorbs the effects of the variation in the direction of the resultant pressure from the consecutive points along the path of the rapidly vibrating wings, and the arc of the stroke can be considered in the same light as is the arched surface, except that the pressure direction is reversed and is here centripetal. At **D** the position of advancing flight is shown. Here the chord of the arc is inclined forward. Gravity is resolved against the arc of the stroke and a horizontal component propels. At **E** a similarly produced backward movement is illustrated. In like manner a horizontal component of gravity can be formed by operating one wing in a higher plane than the other, which will act to force the body sidewise.

* * * * * * *

Much of the foregoing may be summed up and its purpose, perhaps made clearer in a comparison between watercraft and the aeroplane.

The watercraft is suspended between two fluids of different densities. The hull is so disposed that this difference in the density is preserved, the lighter above and the denser beneath the surface the hull presents. A pressure against the under side, which is equal to the weight of the craft, results.

The aeroplane is immersed in but one fluid, but which offers a resistance to motion, and whose density is disturbed by motion. At a certain speed a pressure equal to the weight is produced, which is preserved against the under side, and which acts much the same as the difference in the densities of the fluids of the watercraft.

In watercraft originally equilibrium might have been obtained by outrigged floats, but with the recognition of the metacentre, a form evolved that is more stable, stauncher, more serviceable and more economically operated than is possible of attainment with outrigged floats.

In the aeroplane, at the present time, equilibrium is obtained by outrigged vanes, but when the point herein described as the centre of pressure is recognized a form will evolve that will be more stable, stauncher, more serviceable and more economically operated than is possible of attainment with outrigged vanes.

The foregoing covers but briefly the main points of a theory that has gradually developed from laboratory experiment and observation, that has for several years withstood close search for contrary evidence and has fulfilled actual application in so far as I have been able to carry such tests.

It is here offered in the hope that it may find an influence in advancing the development of the perfect aeroplane. For this device, with the locomotive and the steamship, will take its place as a force of civilization. A far greater place, for its pathway is the ever present boundless air; the greatest force yet entrusted to man and destined to both invite and compel lives worthy of the common brotherhood of man.

Legagneux Sets New Altitude Mark

Climbs to a Height of Three and One-half Miles

THE lure of great heights has again fired the blood of some of the great aviators of Europe and in three months the world's record for altitude has crept from a height of 12,792 feet, made by Roland Garros on September 4, 1911, to a mark of 18,635 feet established by George Legagneaux on September 17, 1912.

On June 30th, Lieut. Blaschke carrying a passenger ascended to a height of 14,301 feet, while flying at a meet at Vienna, Austria. The flight was made on a Lohner-Arrow biplane equipped with a Daimler engine. Lieut. Banfield had the honor of being the passenger carried to this remarkable height and in all probability the passenger-carrying record will stand for some time.



Photo by Paul Thompson, N. Y.

Helmuth Hirth

This mark, however, was not destined to stand long, for on July 7, the last day but one of the Leipsig aviation week, Helmuth Hirth ascended to a height of 14,825 feet and became the new holder of the world altitude record. This flight was investigated by the Institute of Physics of the Leipsig University, because the barograph used by Hirth recorded only 4,000 metres (13,120 feet). Dr. Wiener and Dr. Schiller, of the Institute of Physics, examined the barograph and have ascertained, as stated by them in writing, that Hirth, on that day, reached an absolute height of 4,520 metres (14,825 feet). Hirth used a Rumpler monoplane.

On September 7, three days more than a year after he had made his previous world record for altitude, Roland Garros again shot his Bleriot monoplane into the blue heavens, this time over Houlgate, France, and returned to earth after having eclipsed the world record for height. He attained an altitude of 16,249 feet, using oxygen after 13,000 feet. "At 15,745 feet, the height of Mont Blanc," says Garros describing his flight, "I had not a drop of oxygen left. My motor had a succession of breakdowns which stopped the upward progress." A "knock" developed in the engine and when the barograph indicator hovered about the 16,400 feet mark, it refused to climb further.



Roland Garros

Garros then pointed the nose of the Bleriot dawnward and shot toward the earth, shutting off the motor. When he reached the ground he found that a small part in the engine was broken. Garros landed twelve miles from his starting point.

Circling amid the clouds above Versailles and Chatillion, ten days after the remarkable flight of Garros, George Legagneux, in a Zens monoplane, broke the world altitude record of Garros by reaching a height of 18,635 feet. On September 17, the aviator ascended at 11.08 A. M. from Issy-les-Moulineaux and in forty-five minutes had attained a height of 5,680 metres. Legagneux ascended the first 1,000 metres in two and one-half minutes, and he had reached the downward and shot to-3,000-metre mark at the end of twelve and one-half minutes. It took five minutes more to reach the 4,000-metre mark, and an additional fifteen minutes was necessary before the 5,000-metre mark was passed. Legagneux carried a tube of oxygen with him and was obliged to use it when he passed the 4,800-metre mark (15,748 feet).

Legagneux volplaned down from his record height in ten minutes and landed at Villacoublay about 12.40 P. M.

After alighting Legagneux declared that he was in no way inconvenienced by the rarefraction of the atmosphere or the temperature. "I am convinced," he said, "that there is no danger in high flights. They are merely child's play, and I am sure I could go still higher if my record were threatened.

George Legagneux was holder of the world altitude record once before, from December 9, 1910, to July 8, 1911, when Marcel Loridan set up a new mark with a Farman biplane. On December 26, 1910, the late Arch Hoxsey reached a height of 11,474 feet but he fell to his death on December 31, with the barograph attached to his machine, so that his mark could not become official.

Now that an aeroplane has been able to navigate the atmosphere to a height of three and one-half miles, it is very difficult to predict where it will all end. It seems perfectly obvious that there is nothing to be gained from such flights except notoriety, although Legagneux received a franc for every metre that he ascended making him a purse of $1136.

Two years ago it was argued that the heavier-than-air machine could not pass the ten thousand foot mark, but we have lived to see that mark almost doubled.

It is safe to predict that Legagneux's mark will be surpassed before long and that the last of the altitude marks is yet to be established.

Paul Peck Has Fatal Fall at Cicero Field

WHILE flying in a gusty wind on the day previous to the opening of the Chicago aviation meet, Paul Peck, holder in the American duration flight record, was fatally injured in a fall with his biplane and died shortly before midnight. When the machine struck the ground the heavy engine crashed through the wreckage, striking Peck in the back of his head, fracturing his skull. He also suffered internal injuries.

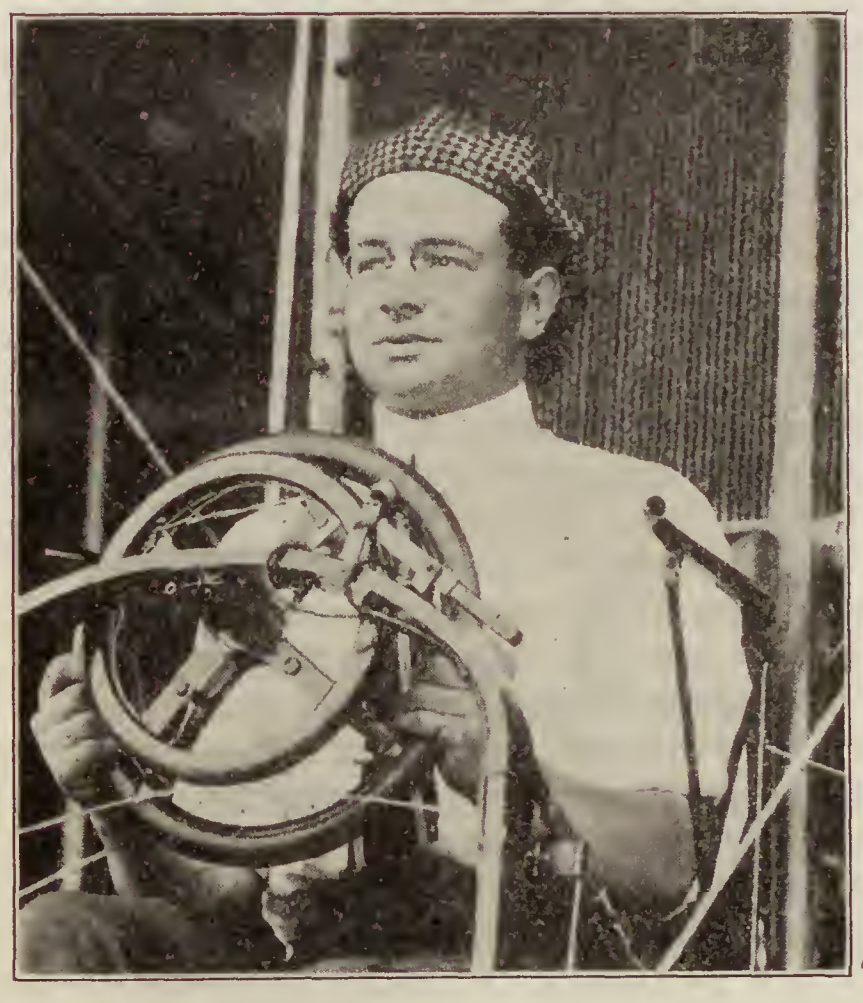


Photo by Harris & Ewing. Wash. D C.

Paul Peck

On September 11th a gusty wind was blowing all day on Cicero Field. Director Andrew Drew posted warning notices, but toward nightfall Peck decided to ascend, believing that his small speedy biplane would carry him through the choppy wind.

At an altitude of about 800 feet Peck started to descend in a spiral, but it became too steep and the aviator was unable to bring the biplane back. It is believed, however, that Peck would have escaped with minor injuries if the engine had not crashed through from its mounting.

The biplane was of only 26 feet span, was headless and equipped with a revolving American motor.

The report of a technical committee which examined the wreck is that the accident happened from the aviator making too steep a spiral and lack of caution in the puffy wind which was blowing at the time.

Paul Peck was only twenty-four years old and had been flying about one year. He took up aviation at College Park and mastered the operation of the machine in nine days. He was licensed pilot No. 57.

His young wife died in Washington last winter after a transfusion of blood had been made from Peck in an effort to save her life. His parents live in West Virginia.

Peck was enthusiastic and skillful and bore the reputation of being a careful pilot. To his many friends at College Park the news of his death came as a great shock.

At Nassau Boulevard, L. I., on May 24th this year, Peck broke the American endurance record by staying aloft for four hours, twenty-three minutes and fifteen seconds. It was to create this new record that Peck ascended in brilliant sunlight at 3.20 o'clock, and volplaned to earth a few minutes before 8 o'clock in the evening, in the midst of a thunder storm that had started a few minutes earlier.

When the storm started friends and assistants of the aviator, as they had watched Peck at an altitude of 2,000 feet make circuit after circuit of the course, looked for him to land immediately. They feared that the unexpected storm would prevent him from making the record. Peck in his flight carried twenty-five gallons of gasoline and seven gallons of oil. With this fuel he could have remained aloft longer, except for the rain. When he was certain that he had broken the American endurance record he decided to risk the dangers of flying in a storm no longer.

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Our Government in Aviation

FRANCE, Germany, England and Italy owe the present condition of aviation in their respective countries to the support given the industry by their governments. The continual purchase of aeroplanes by the military departments creates a demand for aeroplane factories with facilities for building and assembling machines quickly. It makes necessary trained aviators, mechanics and designers. Competition has become so keen that the designers are continually experimenting to perfect aeroplanes with superior points. The incentive for this is government orders for machines.

With aviation in the present condition in this country, it is obvious that only a few aeroplane companies can operate at a profit if they depend on individual purchasers for the sale of their product. While the hydro-aeroplane is relieving the common prejudice against aviation the fact remains that aside from machines bought by exhibition aviators, sales are very few. Without doubt the airboat is about to increase the interest in flying as well as resulting in placing hydro-aeroplaning on a sporting basis, but after all this really counts for very little as far as the progress of the science and the industry in this country is concerned.

Manufacturers know that they can build aeroplanes that will fly from land and water. The sales are sufficient for the plants to operate at a profit. What incentive is there in this country for a man to invest large sums of money in the further development of the aeroplane? The Government has appropriated no money to make it worth a designer's time to attempt to compete for military aeroplanes. In fact it is quite apparent that one department of the government prefers to work out its own salvation in aviation. We hope they do, but we are inclined to believe that if it were made worth their while, those men who have studied aviation in this country since its inception are more competent to attain that end, and with a greater probability of success.

England with a budget of $850,000 has, in the past six months, attained without question third rank in aviation among the nations. Russia has more aeroplanes than England, but the spirit of invention and development does not equal that of England.

Italy by popular subscription has raised sufficient funds to buy one hundred aeroplanes for the government. According to a report of United States Consul General James A. Smith, there are ten prominent aeroplane factories in operation in that country and nine schools of aviation.

By government support of the aeroplane manufacturers, France assumed the lead in aviation among the countries of the world and has never been approached. The aeroplane and engine companies of France and Germany as well, are prosperous and have every prospect of remaining so.

The Army and Navy of the United States, today, have more aviators than they have aeroplanes, while there is a dearth of expert mechanics for the machines that they now have.

It is true that our frontiers do not present the menace that those of European countries represent, but is that sufficient reason for neglecting the development and the establishment of the aeroplane industry in this country? Because there is no war, do we cease to have fleet maneuvers? Does the work of testing and perfecting rifles and guns cease because the country is in a state of peace? Does the government permit the arms and ammunition factories to reach a point where their output would be totally inadequate in case of sudden war?

Yet this is our position as far as the aeroplane is concerned, and Congress seems to have been

blind to the fact that the aeroplane and dirigible are not only destined to become terrible weapons of war, capable of producing fearful destruction, but absolutely essential auxiliaries of the Army and Navy.

Hudson Maxim in an article, which appeared in the May issue of "FLY" stated that $10,000,000 should be immediately appropriated for the establishment of an American school of aeronautics.

The Hon. William B. Sharp, of Ohio, in a recent speech before Congress, asked that $15,000,000 be appropriated for aviation, to be spent as the occasion demands, to develop this new means of national defense and attack.

He said:

"Do you know what $15,000,000 will do? It will buy 1000 of the most improved up-to-date aeroplanes that are made today in Europe or in this country. In addition to that it will provide the five centers of aviation which this voluminous report of the Secretary of War recommends to be established on our Atlantic seacoast, along the Great Lakes and the Pacific slope. It will establish needed schools of aviation. It will build what is more necessary today than any one other improvement as effecting the development of this science—it will build a great aeronautic laboratory, of which there exist many in Europe."

Is it possible that the people of the United States fail to realize the truth of these words?

The Government must sooner or later assume its proper place in aviation among the nations. In times of need it will have to depend upon the aeroplane manufacturers of the United States for its supplies and aeroplanes. But today it would find them quite unprepared should the occasion arise.

With less than a score of aviators and not enough machines for them to fly, the aerial maneuvers of the military would not amount to very much. It is conceded that machines of the air will be fought with machines of the air in times of war, and not with guns from the ground. On an aerial battlefield we would not even be able to compete with Japan or China at the present time.

With Congress spending millions of dollars for everything under the blue sky but aeroplanes, and even failing to pass a bill for doubling the pay of officers flying aeroplanes, it looks as if the coming election were the time to sing the "Swan song" for certain Senators and Representatives.

Incidentally it would not be a bad idea to find out how the men YOU intend to vote for stand on the question of an appropriation for Government aviation.

France Raises Fund for Wright Memorial

THE Aero Club of France is making an appeal to the public for funds with which to erect a monument to Wilbur Wright at Auvours, France, where the American pioneer carried on his first remarkable flights in that country.

It is announced that the smallest contribution to the memorial fund will be greatfully received at the offices of the Aero Club in Paris.

The committee has decided that the monument shall be a block of granite, simply inscribed with the name of Wright and the dates of the important flights at Auvours.

On the committee are Hart O. Berg and Frank S. Lahm, who represent America. The other members consist of friends and admirers of the dead inventor and aviator, who supported him from the moment of his arrival in France.

The committee will also present to the Paris Conservatoire of Arms and Crafts the aeroplane in which Wilbur Wright made his flight of one hour and a half on September 21, 1908.

The Aeronautical Society of Great Britain is raising a memorial fund to Wilbur Wright, and according to the last report it already approaches $2,500.

The activity of the aero clubs of Great Britain and France is a sad commentary on American admiration and appreciation.

Army Wants Only Two Aeroplane Types

The War Department announces that, until further notice, the intention of the Army aviation service is to purchase only two types of aeroplanes.

One type will be known as "Speed Scout" aeroplane. This type is desired particularly for strategical reconnaissance, carrying only one aviator without passenger, and having a radius of operation of about 100 miles and a speed of not less than 65 miles per hour. With this type of aeroplane a military aviator is expected to locate and report large bodies of troops. This machine should be capable of ascending at the rate of about 600 feet per minute.

The second type will be known as "Scout" machine. It is desired for reconnaissance service when hostile armies are in contact or approaching contact. This service requires a weight-carrying aeroplane, the crew consisting of two aviators, capable of relieving one another as observers; the aeroplane should be provided with radio equipment. This type of aeroplane should remain in the air at least three hours to permit the observers to locate smaller bodies of troops accurately upon a map, make sketches, military photographs, etc. The "Scout" aeroplane should have a speed of not less than 45 miles an hour; the maximum speed must not exceed 60 miles per hour. It should be capable of carrying a useful weight of 450 pounds, and with this weight ascend at least 2000 feet in 10 minutes.

Prevost on Deperdussin Breaks World Records at Clearing

Winning of Race by Jules Vedrines a Foregone Conclusion

FOR the first time in the history of the Coupe Internationale d'Aviation the contest opened and closed without the holding club starting a machine to defend its honors; for the first time in the history of the aerial derby only one team competed in the race; for the first time in the history of the international classic France won in a hollow victory what it should have captured in 1910.

Without competition, except by his own countrymen, Jules Vedrines covered the Gordon-Bennett course of 124.8 miles at Clearing, Ill., on September 9th, in 70 minutes, 56.85 seconds, winning the contest and returning to France victor in the fastest aeroplane race ever flown for the famous trophy.

Those who assembled to see the race did not even have a chance to cheer for an American entrant, for not a machine to defend the trophy for the Aero Club of America stirred from its shed. And the most chagrined of all was Vedrines himself, who could not help but feel that the victory was indeed an empty one.

The Frenchmen put us to further shame when Prevost and Frey later in the afternoon raced against each other as if their lives depended on it, although they knew that with engines of forty horse-power less than that of Vedrines they did not have a chance to win. At that Maurice Prevost's time in his one hundred horse-power "Dep" was 72 minutes and 55 seconds. In addition this daring Frenchman broke all world's records for speed for machines of one hundred horse-power up to the 125 miles mark. His average speed for the course was 100.05 miles per hour.

Andre Frey, who flew a one hundred horse-power Hanriot monoplane, went out on the twenty-fourth lap with engine trouble, but up to that time his average speed had been 93 miles per hour. Frey's engine was erratic from the start, but he stuck to it so long as he had a chance. Who can forget the flight of the plucky Frey in the Paris-Rome-Turin race? After Beaumont and Garros had given up the Rome-Turin stage of the race, Frey started and came to disaster near Viterbo, Italy, and was seriously injured. For days he hovered between life and death in a hospital at Ronciglione, and when his health began to mend he announced that he would resume flying upon his complete recovery.

With a southwest breeze, approximating twenty miles an hour, Jules Vedrines climbed into the cockpit of his clay-colored Deperdussin monoplane and at 9.38 A. M. shot across the starting line with the speed of a bullet. Treacherous air-currents hid in the course, and at times the aviator was forced to swing wide on the pylons and cut down his engine, thus losing valuable speed. For six laps Vedrines averaged but 103 miles an hour, but on the seventh he opened up and on the stretch approximated 115 miles an hour.

It was apparent from the start that Vedrines would not do his best or attempt to equal his own world's record of 106 miles an hour, when he failed to affix his racing wings to the machine, but instead started in the race with those used for cross-country flying.

Vedrines did little warping and flew at an average height of 60 feet, as did Frey. The breeze which blew from the southwest made banking on the south side of the course a risky proposition.

The fastest lap of the course of 4.14 miles was the sixteenth, which Vedrines covered in 2 minutes, 20.24 seconds. He crossed the finish line at 10.48, 56.55 A. M., and then did the usual extra lap, landing far down the course in a cloud of dust. The first to greet him after his wonderful flight was M. Jacques Schneider, millionaire representative of the Aero Club of France, who embraced him like a long-lost brother. Vedrines could hear nothing for more than half an hour, as the thunder of his powerful Gnome made him totally deaf for the time being. When he learned his time he seemed quite disappointed and promised to make some records before the day was over, and he did.

While no world's records were broken by Vedrines in the race, he smashed all American records for the distance. It was quite evident that no American machine could equal the tremendous speed of the Deperdussin unless it was the "American Defender," which was withdrawn on the night previous to the race.

Since the French machine had finished the Aero Club of France was assured of the trophy, but interest

TIME LAP BY LAP

	Start	1	2	3	4	5	6	7	8	9	10	11
	H.M.S.	M.S.	M.S.	M.S.	M.S.	M.S.	M.S.	M.S.	M.S.	M.S.	M.S.	M S.
Vedrines, France	9:38:00	02:24	04:47	07:11	09:34	11:57	14:19	16:66	19:03	21:26	23:49	26:11
Prevost, France	4:24:20	02:22	04:38	07:83	09:23	11:48	14:12	16:37	19:01	21:25	23:51	26:16
Frey, France	4:22:06	02:43	05:26	08:06	10:47	13:27	16:09	18:51	21:33	24:13	26:54	29:36



Photo by Underwood & Underwood, N. Y.

Maurice Prevost who holds all records for speed, with 100 h.p. aeroplane, up to 125 miles

still centered in Prevost and Frey, who with engines of forty horse-power less, were sportsmen enough to compete, despite their own realization that they could not hope to equal the time made by Vedrines.

It was not until 4.22.06 P. M. that Andre Frey in his one hundred horse-power Hanriot crossed the starting line. At 4.24 P. M. Maurice Prevost in his one hundred horse-power Deperdussin was off and the spectacular race of the day was on. From the start it was evident that Frey stood little chance with his Hanriot, and Prevost lapped the plucky aviator almost twice before the former was forced to abandon the race in the twenty-fourth lap. Prevost, displaying superb mastery of his machine, flew close to the ground, banked daring, and furnished the thrills of the day.

Long before he had finished it was known that Prevost was smashing all world's records for speed in aeroplanes of one hundred horse-power, and his camp mechanicians and countrymen could scarcely contain themselves. On and on rushed the yellow streak, at times seeming to almost touch the ground, until at last it shot across the finishing line and journeyed full two miles down the course before Prevost could shut down his engine sufficiently to land.

OF CUP RACE CONTENDERS

12 M.S.	13 M.S.	14 M.S.	15 M.S.	16 M.S.	17 M.S.	18 M.S.	19 M.S.	20 M.S.	21 M.S.	22 M.S.	23 M.S.	24 M.S.	25 M.S.	26 M.S.	27 M S.	28 M.S.	29 M.S.	30 M.S.
28:34	30:35	33:17	35:40	38:02	40:23	42:40	45:05	47:27	49:47	52:08	54:28	56:49	59:10	61:30	63:51	66:12	68:24	70:56
28:42	31:08	32:35	36:01	38:27	40:52	43:18	45:40	48:12	50:38	53:06	55:34	58:02	60:31	62:59	65:28	67:57	70:26	72:55
32:21	35:04	37:45	40:28	43:10	45:53	48:35	51:19	54:02	56:48	59:29	62:13	Out.						

Before Prevost could climb from the cockpit of his machine M. Schneider and Vedrines had pulled him out bodily and wrapped in the flag of France they carried him in triumph to his hangar.

But in their enthusiasm the Frenchmen did not forget their chivalry, for when they saw the flag of France flying from the flagpole across the field they journeyed to it in a body, carrying an American flag with them, and hauling down the tricolor of their own country ran the Stars and Stripes up the halyards, while the band changed its tune from the "Marseillaise" to the "Star Spangled Banner."

Then, just to show his good sportsmanship, Vedrines returned to his hangar and ordered his "Dep" wheeled out again. "I will break the twenty kilometer record," he said simply. Like a flash the great yellow machine was off and tearing down the course at phenomenal speed. Three times around the course it went and then came to earth. A sign went up on the bulletin board, "Time for twenty kilometers, 6 minutes, 55.95 seconds." Vedrines had broken his own record, just to show what his machine could have done if it had been pushed in the race.

Before leaving for France, Vedrines went personally to the management and thanked them for their courteous treatment and said that his only regret was that he was carrying home "empty honors." When Vedrines arrived in Paris the welcome looked like anything but empty honors, for high officers of the republic, leading members of the Aero Club of France and prominent persons in all walks of life welcomed him home. Vedrines, in a brief speech, said that now that he had brought the trophy to France, he hoped that it would never be taken away again.

Regardless of who was responsible for the fiasco on the part of America, no discredit can be placed on the Aero Club of Illinois. Vedrines and Prevost both pronounced the course at Clearing perfect; in fact, the finest course over which the Gordon-Bennett had ever been flown.

Having spoken our little piece regarding the French heroes of the air, we turn to wonder just what happened to the machines and aviators who were to defend the trophy for the "Sick Man of Aviation."

After a day's war between the owners of the "American Defender" and the Aero Club of America, the monoplane upon which rested the hopes of the nation was withdrawn on the eve of the race. This left the Columbia monoplane, to be driven by the late Paul Peck; the Nieuport monoplane, to be operated by De Lloyd Thompson, and a Wright biplane, to be operated by either the late Howard Gill or Max Lillie. Not a machine among them all had a chance. It was afterwards admitted that the Nieuport would have been started in the race if the French team failed to complete the course. What splendid sportsmanship!

While the reason for the withdrawal of the "American Defender" was not made known at the time, the *Chicago Record-Herald* printed this explanation of it the day following the race:

"The mystery of Charles Dickinson's action in withdrawing his machine from the contest on the eve of the race was dispelled yesterday by Glenn H. Martin. The explanation was drawn reluctantly from the lips of the aviator after Mr. Dickinson and officials of the Aero Club had refused to throw any light on the affair.

"'Mr. Dickinson was treated unjustly,' the Los Angeles aviator declared. 'He was tried beyond endurance. He was snubbed time and again until he could stand it no longer. His withdrawal of the machine was the only solution of the problem left for him.

"'The "Defender" was built by Mr. Dickinson at a cost of $20,000. He spent months of his time and a great part of his energy in building a plane that could successfully defend the Gordon-Bennett cup. He believed it his prerogative to select a driver whom he believed the most competent to win the race.

"'Without consulting him officials of the Aero Club selected a team of three men, one of whom was to have been selected to drive Mr. Dickinson's machine. They were Andrew Drew, Max Lillie and DeLloyd Thompson. None of these aviators ever piloted a speed plane. Lillie is the only one who ever fought the wind.

"'The club officials persisted in their demands, so Mr. Dickinson could do nothing but withdraw the machine from the race. This is the explanation of the failure of America to put a plane in the race that stood a ghost of a show of winning.'"

This is, of course, only one side of the argument. However, the whole affair makes a sorry spectacle of America. Let us hope that next year there will be serious preparations made to bring the trophy back to America. A little more earnest effort on the part of the controlling body of aeronautics and fewer declarations of their intentions might have brought forth some cause for encouragement.

A glance at the record of American entries shows that each year interest has lagged somewhere in this country. First Glenn Curtiss went to France and captured the cup. Then next year at Belmont Park, Curtiss and the Wrights each built machines for the race. Curtiss' machine never left the ground and the Wright racer came to grief before it had a chance to start. J. A. Drexel and John J. Moisant in Bleriots remained to defend the trophy, and they failed. Last year Charles Weymann in a Nieuport journeyed from France to Eastchurch, England, and there won the contest for America. It was the only machine representing the United States in the race. This year not even one machine was prepared to start to defend the trophy for the Aero Club of America. Just where will America stand next year, if the present powers in aviation in America continue on their career, uninterrupted?

Gyroscopic Problems in Aviation

By Herbert Chatley, B. Sc., (Eng.) A. F. Ae. S., A. M. I. C. E. I.,
Professor of Civil Engineering, Tang Shan College

THE question of the gyroscopic action for the control of aeroplanes and the gyroscopic effects of propellers and rotary engines on steering is of great importance. Persons interested will find the subject treated at some length in my recent book "Practical Gyroscopic Balancing" (can be secured through FLY for 50 cents), but some further notes may be useful.

First, I wish to refer to a problem introduced by Aviator Jarman in the *Scientific American* correspondence columns some months ago. He stated that gyroscopic action caused veering when rolling on the ground. This veering effect I have myself experienced when rolling an aeroplane, but it is quite a mistake to suppose that it arises from gyroscopic torque. The latter cannot come into being unless the axis of rotation of the engine is itself rotated, i. e., while veering could cause it, it could not cause veering. The real cause of this veering is the counter torque of the engine, which makes the wheel pressures of the chassic different, decreasing the load on one side and increasing it on the other. If the coefficients of rolling resistance are equal at both wheels, the difference of load will cause difference of resistance at each wheel, and consequently the machine will veer. With paired engines nothing of the kind occurs, as Jarman says, but this is not because the gyroscopic torques neutralize but because the engine torques do so.

Professor Bryan, in his classical treatise "Stability in Aviation," shows that gyroscopes cannot control a partially stabilized machine because of the accelerations. Thus when "banking" the gyroscope would tend to prevent the machine taking the proper position at the end of the turn. With an engine having the axis transverse (as in the Deperdussin patent type) the effect would appear unless there are two engines running in opposite directions (as in the said patent).

Professor Bryan says: "An aeroplane formed of ideal straight planes with no vertical fins or bent up surfaces cannot be rendered laterally stable by the use of gyrostats or pendulums alone." (Stability in Aviation, p. 182.)

The mathematical proof is then given and he finally points out that there is only one loop hole, viz: to make the machine inherently *unstable* and then use the gyrostats to convert this instability into stability.

Another point that is frequently overlooked is that a gyrostat cannot resist a permanent torque, since the development of the counter-torque depends on the angular acceleration of the axis of the flywheel. As soon as the said axis has rotated into the plane of the disturbing torque the counter-torque vanishes.

As far as the fore-and-aft stability is concerned the difficulties are still more serious. A gyroscope would tend to prevent the angle of attack from adjusting itself to gusts so that in some cases the wind pressure might be transferred to the top of wing owing to the gyro holding the head down.

It must not, however, be supposed that control in these lines is absolutely impossible, but it should be clearly realized that the problem is much more difficult than on land or sea where there is a definite support to carry the reactions.

A Communication

Editor of FLY, CHICAGO, September 17.
Philadelphia.

Sir:—

Less than two hours before the accident that killed Paul Peck I had a talk with him on the subject of the danger in gyroscopic force. He admitted that at times this force had caused him considerable trouble, but said that he did not believe it to be particularly dangerous. I explained to him several conditions that would excite gyroscopic force in his motor to a point that would become highly dangerous, and told him that should he ever meet one of these conditions he would at once be convinced that I had not overestimated the peril, but that he would then be in the same fix as the other fellows that have gone before, *not able to tell about it!* The newspaper accounts of the accident say: "No one but Paul Peck could tell exactly what caused the accident."

I had just examined Peck's new machine and told him that he would have to be extremely cautious in the use of his controls, as it, in my opinion, would be highly susceptible to the elevator and would rock lightly about its lateral axis. You will notice by the newspaper accounts that after his first flight he spoke particularly about this very feature, and it was no doubt one of these sudden dips that exited gyroscopic force and caused the spiral movement in his machine. I found three eye witnesses, not one of whom was an aviator, who distinctly saw Peck turn his controls contrary to his path of flight, but in all the accounts of the accident, given out by the aviators, not one of them mentioned the fact that the machine spiralled with its *rudder turned to the OUTSIDE of the Circle* and *pitched downward with its elevator RAISED to the limit!* Nor did any one think it worth while to mention that during all this time the motor was spinning at top speed. These three features of the accident, completely ignored in all published accounts, show the real cause and prove the brutal strength of this force when once it is set in motion.

Peck said that, while he did not believe there could be any serious danger from gyroscopic force, he was open to conviction and asked me to bring out to him the following afternoon a copy of my new article on the subject (herewith enclosed). I was there with the copy at the appointed time, but too late to save the poor fellow.

How much longer are they going to fight against the truth? How many more lives must be sacrificed before they will understand?

Yours faithfully,
THOMAS PRESTON BROOKE.

MODEL AEROS.

A DEPARTMENT FOR ALL INTERESTED IN MODELS AND MODEL FLYING

Conducted by the Junior Editor **Model Editor, Philip T. McCutchen**

The Selley Monoplane

By Percy Pierce

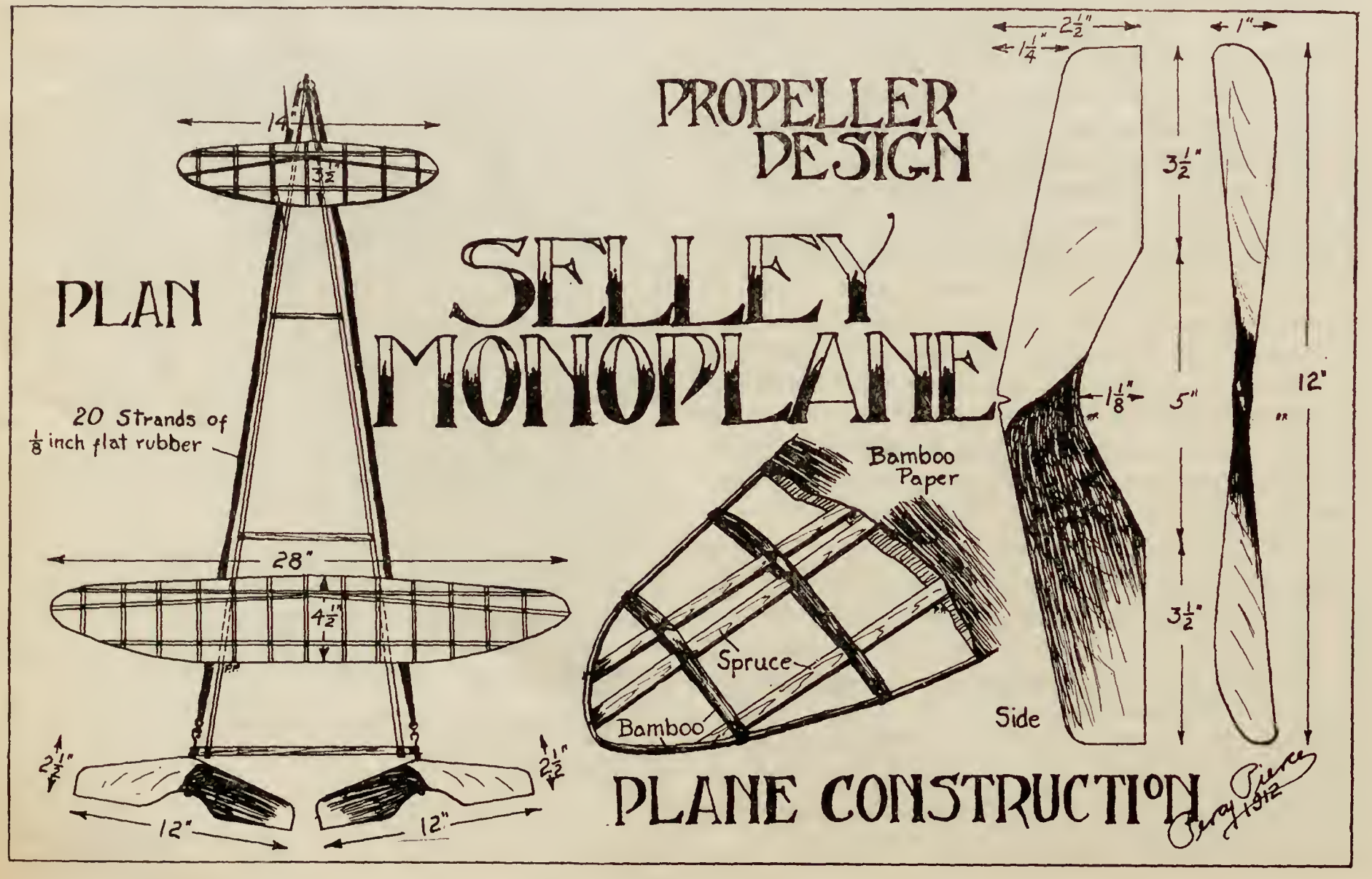
THE Selley Monoplane described this month is somewhat of a departure from the old type of model.

The shape of the propellers is one of the newest features. The long flights it has been making in the vicinity of New York recently proves its dependability. The best official record in distance is thirteen feet more than half a mile, that is, 2653 feet, and in duration 81 seconds. The machine is the production of Armour Selley, of Brooklyn, N. Y., a member of the Long Island Model Aero Club. The following description of the Selley Flyer may prove interesting:

Fuselage: This is triangular in shape and 37 inches long. The two main members being of spruce.

Planes: Both the elevating and main planes are built-up, the main bars being of spruce with bamboo ribs, of which there are 13 in the large plane and 7 in the small elevating plane. The main plane has a spread from tip to tip of 28 inches, with a width of 4½ inches; that is, an aspect ratio of about 6¼. The elevating plane is 14 by 3½ inches.

Propellers: These are cut out of blocks 12 x 2½ x 1 inches, the 2½ inches being the thickness of the blanks. The pitch, thus being about 14 feet, is "going some" for a model of this size. The motor consists of 20 strands of ⅛-inch flat rubber, which drives each propeller about 500 to 700 R.P.M.



News of the Model Clubs

The New York Model Aero Club has been granted the privilege of meeting in one of the rooms of the New Grand Central Palace. It is nicely situated in the centre of the city, so all the members can conveniently attend. The Club is growing very rapidly with Ralph S. Barnaby in the chair, and Charles L. Ragot as business manager. Recently the Club had the honor of being the guests of the Aero Club of America, at which time a number of cups won by the N. Y. M. A. C. members at May Aero Show, were presented by the Aero Club officials. At this meeting the Aero Club showed great interest in the work of the N. Y. M. A. C.

The **Philadelphia Model Aero Club** has practically been disbanded during the summer owing to the absence of the members. However, on September 7th the opening meeting of the Club was held. This was the "best yet." The officers elected for the coming term were: Percy Pierce, president; Hurtis G. Oakley, vice-president, and D. Earle Dunlap, secretary and treasurer. The meeting days have been changed to twice a month. The Club has decided to hold weekly contests at their new aviation field, the first one to take place Saturday, September 14. At least fifteen or twenty entries are expected.

Contests

Brooklyn, N. Y., July 6.—In the *Brooklyn Daily Eagle* contest, for models rising from the ground under their own power, Harry Schultz took first place by making a flight of 861 feet. In a second attempt to better his flight the model landed on the Long Island Railway tracks. A Coney Island express got there first; when Harry arrived he found nothing but the wreckage. A. Selley came second with 708 feet. In the event for hand-launched models of two feet and over, Francis W. Walton was first with 55 seconds; second, Howard McDonald, 52 seconds.

Chicago, Ill., July 6.—**The Illinois Model Aero Club** is climbing up the ladder. Their latest record is now 1,550 feet. The distance event was won by Arthur Nealy with 1,550 feet; second, Harry Wells, with 1,120 feet; and last, but not least, Louis I. Phillis, with 1,065 feet. In the duration Arthur Nealy also took first place with 57 seconds; second, Louis I. Phillis, 52 seconds; third, Harry Wells, 45 seconds.

New York, N. Y., July 28.—**The New York Model Aero Club** held a contest in connection with the Greek-American Athletic Club Field Day Meet. Twenty members of the Club entered for the five prizes offered. Silver cup, offered by the G. A. A. C. for hand-launched distance, was won by A. Abberley with 1,429 feet. Silver cup, offered by the N. Y. M. A. C. for a 10-ounce model and over rising from the ground, won by George A. Page, Jr., 502 feet. G. A. A. C. gold medal for duration, won by Francis W. Walton, 54 seconds. G. A. A. C. silver medal, distance from ground, won by H. Schultz, 666 feet. G. A. A. C. bronze medal for spectacular, won by W. F. Bamberger.

New York, N. Y., September 2. **The New York Model Aero Club** held the first model hydro-aeroplane contest in America, in which duration prevailed. Five members of the Club competed. There was a tie between George A. Page, Jr., and W. Bamberger for first place, with 25 seconds; second, John Billings, 22 2/5 seconds; third, Armour Selley, 18 seconds; fourth, Harold Billings, 12 2/5 seconds. The other entry, William Kroger's model, did mostly submarine work. A very handsome silver cup has been donated by Mr. Francis A. Collins for winning three contests with hydros.

Philadelphia, Pa., September 14. The first of the series of contests to be conducted by the **Philadelphia Model Aero Club** proved a great success. The nine machines entered made good flights. The president of the Club donated a medal for the winner. The results were as follows:—Duration, first, Percy Pierce, 58 seconds; second, Oliver M. Prentice, 48 seconds; third, Hurties G. Oakley, 40 seconds. Altitude, first, Percy Pierce, approx. 150 feet; second, D. Earle Dunlap, approx. 125 feet; third, Hurtis G. Oakley, approx. 100 feet. Distance, first, Percy Pierce, 1,790 feet; second, Oliver M. Prentice, 1,653 feet; third, D. Earle Dunlap, 1,304 feet; fourth, Dennis Simmerman, 1,250 feet; fifth, Harold Woodcock, 1,065 feet. Others did not pass the 800-foot mark. The next contest will take place September 21. Medal offered by the Club.

Aeroplanes Block Maneuvers

ACCORDING to the reports from England, the recent army maneuvers were brought to a close because of the effectiveness of the aeroplanes as scouts. An official announcement was made on September 18th that the army maneuvers had been abandoned and that a military conference would be held to adjudge the results.

Owing to the effective work of the aeroplane scouts, no broad plan of action was possible and the armies found themselves in such positions that neither could claim the advantage.

From September 16th to the close of the maneuvers both aeroplanes and dirigibles did brilliant work. They were on scout duty for hours and all the movements of the rival armies were speedily conveyed to headquarters.

Captain Hamilton Meets Death

A DOUBLE fatality occurred in England on September 6th, when Captain Patrick Hamilton fell with a passenger in his Deperdussin monoplane from a height of about 250 feet. The machine in which he met his death was the one used by George Dyott last year in Mexico to carry President Madero on a flight.

Captain Patrick Hamilton had taken Lieutenant Stewart with him as a passenger in his biplane. The officers had flown for a considerable time when a strong wind sprang up, and in endeavoring to make headway against it one wing of the aeroplane collapsed. The machine fell to the ground from an altitude of 250 feet and was destroyed. The bodies of the officers were found in the wreck.

Captain Hamilton obtained his pilot's certificate on March 12th. He was an infantry officer, belonging to the Worcestershire Regiment, but was attached for duty to the Army Flying Corps. Lieutenant Stewart was not an aviator.

Captain Hamilton was well known at Mineola, L. I., and in New York City in aviation circles. He and George Dyott brought the first Deperdussin monoplanes to this country and took part in the meet at Nassau Boulevard last September.

Howard Gill Victim of Unusual Accident

AS the result of a collision of the model EX Wright biplane flown by Howard Warfield Gill, and the Borel-Morane monoplane of George Mestach, on Cicero Field, at Chicago, on September 15th, Gill was fatally injured and died on the way to the hospital. Mestach escaped with contusions and a severe shaking up.

Darkness is said to have been the primary cause of the accident, as it was dark on the ground although it was light overhead. Mestach and Gill were racing and one of them failed to obey the rules of the meet which require machines in passing one another to keep 150 feet above and 75 feet to the right.

According to eye-witnesses, the monoplane crashed into the tail of the biplane, tearing away the elevator and rudder. Gill fell forty feet to the ground and was buried beneath the ruins of his machine. His 60-h.p. Hall-Scott motor crashed from its mounting and struck him. It is said that Gill's back was broken. He died in the ambulance on the way to the St. Anthony of Padua Hospital. The ambulance was the same one that carried Paul Peck from the field four days before.

Mestach's escape from death is said to have been due to the fact that his engine was in front of him and that he was held in his seat by straps.

The loss of Howard Gill is a tremendous one to aviation. He was an earnest worker, and a sportsman in the true sense of the word. He became a member of the famous Wright team after the death of Johnstone and Hoxsey. He obtained his pilot license at Nassau Boulevard on July 12, 1911, and was No. 31.

Howard Warfield Gill was born near Baltimore, Md., May 13, 1883. After leaving school, Gill took up the automobile business and later gained a reputation as a driver.

Early in the era of aviation, Gill started constructing machines, and in 1910 exhibited a splendidly built Curtiss type machine at the Three States Aero Show, which was held in Philadelphia. Here he became connected with the Aero Club of Pennsylvania and he maintained an active interest in the work of the association.

Gill's premier performance was the establishing of an American duration record of 4 hours, 16 minutes and 32 seconds. This he did at a meet in St. Louis, on October 19, 1911. This record he held until it was surpassed by the late Paul Peck, on May 24th of this year, at Nassau Boulevard, L. I. At the time of his death Gill was the only living holder of the Amreican duration record. Al Welsh, Phillip O. Parmelee, St. Croix Johnstone and Paul Peck having all gone before.

After winning his pilot's license, Gill became a member of the Wright team and remained with them until the Wright Company disbanded its flyers. After that he became connected with the Burgess Company and Curtis at Marblehead, Mass.



Howard Warfield Gill

Twice before Gill had met with serious accidents in an aeroplane. The first time was in 1910, at Alton, Ill., and the second was at Los Angeles, in February of 1912.

Gill was one of the foremost American aviators and was a designer and contructor of ability. He constructed the only double engined aeroplane to compete for the Gould prize of $15,000. The failure of any other contestants to appear prevented Gill from winning the prize.

Gill is survived by a mother and two brothers, to whom we extend our sympathy in their bereavement.

Fourny Makes New Duration Record

FLYING at Etampes, France, on September 11th, M. Fourny established a new world's record for duration when he remained in the air for 13 hours and 18 minutes and covered a distance of 628 miles. He used a Maurice Farman biplane and averaged 47 miles an hour. By this flight Fourny becomes winner of the Criterium Prize offered by the Aero Club of France.

The previous record for a non-stop flight was held by Fourny and made on September 2, 1911, when, at Buc, France, he remained in the air 11 hours, 1 minute and 29½ seconds.

Fourny flew over a closed circuit of seven kilometres, and started at 5.53 a. m. There was a strong wind throughout the day and considerable rain, but notwithstanding the condition, Fourny remained in the air until 7.11 p. m.

Charles Walsh Killed in Fall at Trenton Fair

Exhibition Flyer Drops 2,000 Feet to Earth

DEATH claimed one of the pioneer flyers of the Pacific Coast on October 4th, when Charles F. Walsh fell to his death from a height estimated at 2,0000 feet at the Interstate Fair at Trenton, N. J.

Accounts of the accident differ so widely that it is impossible to even guess the primary cause of the fatality. One eye-witness says "the top plane came off," an almost absurd statement; another offers the statement that the "plane collapsed"; yet a third saw the machine "turn upside down," so you can take your choice. The newspapers stated that he was doing the "Dip of Death," whatever that means. As a miscalculated glide, bank or spiral of any kind may result in a fatal accident, one can see how lucid the "Dip of Death" explanation is.

It is agreed that Walsh was indulging in the sort of flying antics that have made Lincoln Beachey famous as an aviator, and there is no doubt but what the fatality occurred as a result of this sort of an exhibition.

Only a few days ago a well-known aviator was remarking to the writer that, with the exception of Lincoln Beachey, Charlie Walsh was the safest and at the same time the most skillful exhibition aviator in the business. Further comment was made regarding his rapid progress as a flyer whose work stood out from the ordinary kind, and it was laid to the fact that he was learning to imitate Beachey with great success. It will be remembered that only little less than a year ago Eugene Ely met a fate similar to Walsh's while flying at a fair in Georgia. His spectacular flying of the weeks previous gave warning of the end that came.

The regrettable part of it all is that these lives are being sacrificed in a work that is of no benefit to aviation, and yet one that has claimed a high percentage of the fatalities in this country. What a sad commentary on aviation in this country when statistics show that a majority of our master aviators have met death flying for the amusement of crowds at fairs and exhibitions.

Charles F. Walsh broke into the flying game on the Pacific Coast and left Los Angeles in May, 1911, with a Curtiss-type machine of his own construction to do exhibition flying. During the spring and summer he flew in the West, coming to Chicago to the big meet in the fall. Here he joined the Curtiss Exhibition Company, and Glenn Curtiss gave him the new machine used by Eugene Ely in his New York-Philadelphia flight.

From then on until December Walsh filled dates in the South and West, and during Christmas week flew at Havana, Cuba. He then returned to this country and finally went to Augusta, Ga., to try out the Curtiss war aeroplane for the Army School. He continued his exhibition flying after his visit there, and came to College Park, Md., in April, where the summer headquarters of the army flying school are, and on April 25, 1912, flew there for his pilot license, which was won and issued No. 118.

Walsh continued his exhibition flying throughout the summer with great success and his flying of late had made him one of the most-talked-of aviators in exhibition work.

Walsh is survived by Mrs. Walsh and two small children, who were visiting at Hammondsport at the time of the accident. We extend to Mrs. Walsh our sincere sympathy in her bereavement.

At the Burgess School

The Navy Department sent Lt. A. A. Cunningham, of the Advance Base School at Philadelphia, here a short time ago and his training was completed in five days under the instruction of Clifford L. Webster. He is now flying alone very successfully, having received 2 hours 59 minutes training. This is but an example of the ease and quickness with which a man can be trained on the hydro-aeroplane.

Lt. T. G. Ellyson arrived last week for special training on the Burgess machine. He completed thirty minutes' training on Monday and ninety minutes on Tuesday and now is flying alone.

Page completed a combination hydro-aeroplane and aeroplane date on August 29 at Barnstable, Mass., this being the second flying on Cape Cod and the first time with a hydro-aeroplane. In the morning four flights were made and in one hour and a half's time the machine was changed over from a hydro-aeroplane to a land machine and ready to fly for the afternoon's program, consisting of the release of carrier pigeons, parachute drop, etc.

Page is engaged to fly the hydro-aeroplane at Sturbridge, Mass., on September 12 to 14. At Rochester, N. H., with an aeroplane on September 24 to 27.

Repairs on the new war machine have been completed and it will go forward shortly to College Park.

The Military Maximotor is meeting with favorable criticism wherever it is demonstrated. Maximotors are being flown in almost every state in the Union and are giving satisfaction according to reports.

The Wright Company has inaugurated a hydro-aeroplane ferry to run between Glen Head, L. I., and the Connecticut shore. Passengers are carried for a nominal charge between the two points.

The American Aeroplane Supply House Bleriots are seen flying quite often at the new field at Hempstead, L. I. F. C. Hild flies the monoplane in a very creditable manner.

A Letter From St. Louis

IN the issue of August 25th, of the Associated Sunday Magazines, there appeared an article entitled "Public Ignorance and the Aeroplane," over the signature of Henry M. Neely, the well-known writer and lecturer. The following letter illustrates the very fact that Mr. Neely has been trying to bring out and he desires to say that he quite agrees with the writer of it. The letter was written on the same day the article appeared.

St. Louis, Mo., August 25, 1912.

H. M. Neely,

#1 Madison ave., N. Y. C.

Dear Sir:

From the home of the "faked" in St. Louis to Madison avenue, is a far cry but we have just read with sour visage your remarkable article, "Public Ignorance and the Aeroplane." The remarkable part is the fact that great actors, airmen, and othes of semi-public position have an all-consuming contempt for the general public, upon whose good opinion they depend so much. As a rule they style them "jays," and no word of contempt is overlooked in expressing an idea of the "jays."

In your article you are doing nothing more or less than the same thing, only it is couched in more politic language. Allow me to write that you do not actually know what you are talking about. Let us show you the reverse of the shield.

In this city the world was shown unbelievable wonders and they were given world-wide credence.

But one day an aviator came here and gave the world of sport and science a black eye from which it has never recovered. This man was billed to "fly," and hundreds of thousands crowded the street cars which carried them to the point where the flight was to be made. For four mortal days the immense crowds went in and out; men and women stood for hours and hours until they nearly dropped from exhaustion, but never a "fly." No words of mine can tell the discomforts of those days as we came and stayed in the broiling sun waiting for an event that was not to take place.

Meanwhile the aviator sat hour by hour in a screened place smoking cigarettes while he was protected from intrusion by the police. Gradually it dawned upon the people that they had been tricked; that the aviator had been "seen" and was bribed not to fly.

Of all the angry people you ever saw, St. Louisians were the most angry. Today while we have highly successful flying at Kinlock Park, they do not get a "corporal's guard" to go out there. St. Louis people absolutely refuse to be buncoed again. The aviator never showed up in this city again and it is a good thing for him that he did not.

Captain Baldwin came out here and gave a perfectly splendid exhibition. I would say that his audience was composed of not more than fifteen hundred people, when he deserved one hundred and fifty thousand.

Your experience with "jays" was more than curious, but the same thing occured here on the river banks. Captain Baldwin not only did all he said he would do but did more. He flew not only over the bridge but **under** it. For that splendid exhibition Captain Baldwin is entitled to the thanks of the world, while the other aviator who failed to make good is cursed under their breaths by 700,000 St. Louisians for the unparalleled suffering his cupidity caused them.

I say, "under their breaths," because the "easist" person in the world is the sophisticated St. Louisian, and "trimmed to a frazzle" he never squeals for fear he will be charged with "knocking" his town. Never a word was spoken about that awful ordeal by the papers. Although it was frightful for the women and children the press treated the matter with frigid silence, but there are four hundred and fifty thousand "jays" waiting with red-elm clubs all ready to moisten their hands and welcome that particular aviator back to St. Louis, just once.

When Captain Baldwin flew under the bridge, I heard a score declare that he never did it, when it had been accomplished before their very eyes, so bitter were they because of the "throwdown" of the other aviator.

That is what the matter is with aviation in general and St. Louis in particular.

We've had it played on us several times. Once a famous warship was anchored in the river. The loyal and enthusiastic residents of St. Louis rushed to see her but were repelled at the point of the baynot; private motor boats were warned away from her vicinity under threat of being sunk, until after the "Upper Clawses" had been entertained. By the time that was over and the "common people" were notified that they might come, no one had any desire to see what a warship was like and cared less. The commander of the vessel finally wrote to Washington to be allowed to return as he said, "There seems to be absolutely no desire on the part of the people of St. Louis to see the ship."

Today, we have a warship of our own in the river, but such was the effect of that officer's arrogance that you could not rope a resident of St. Louis to go out there and see it.

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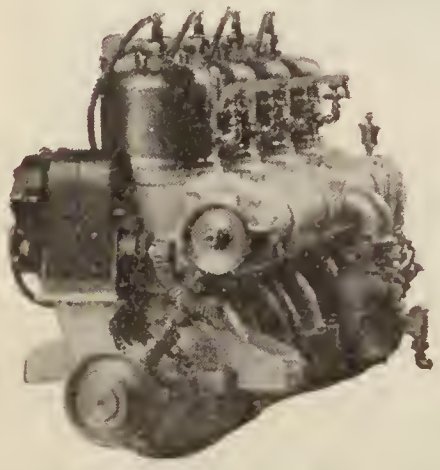
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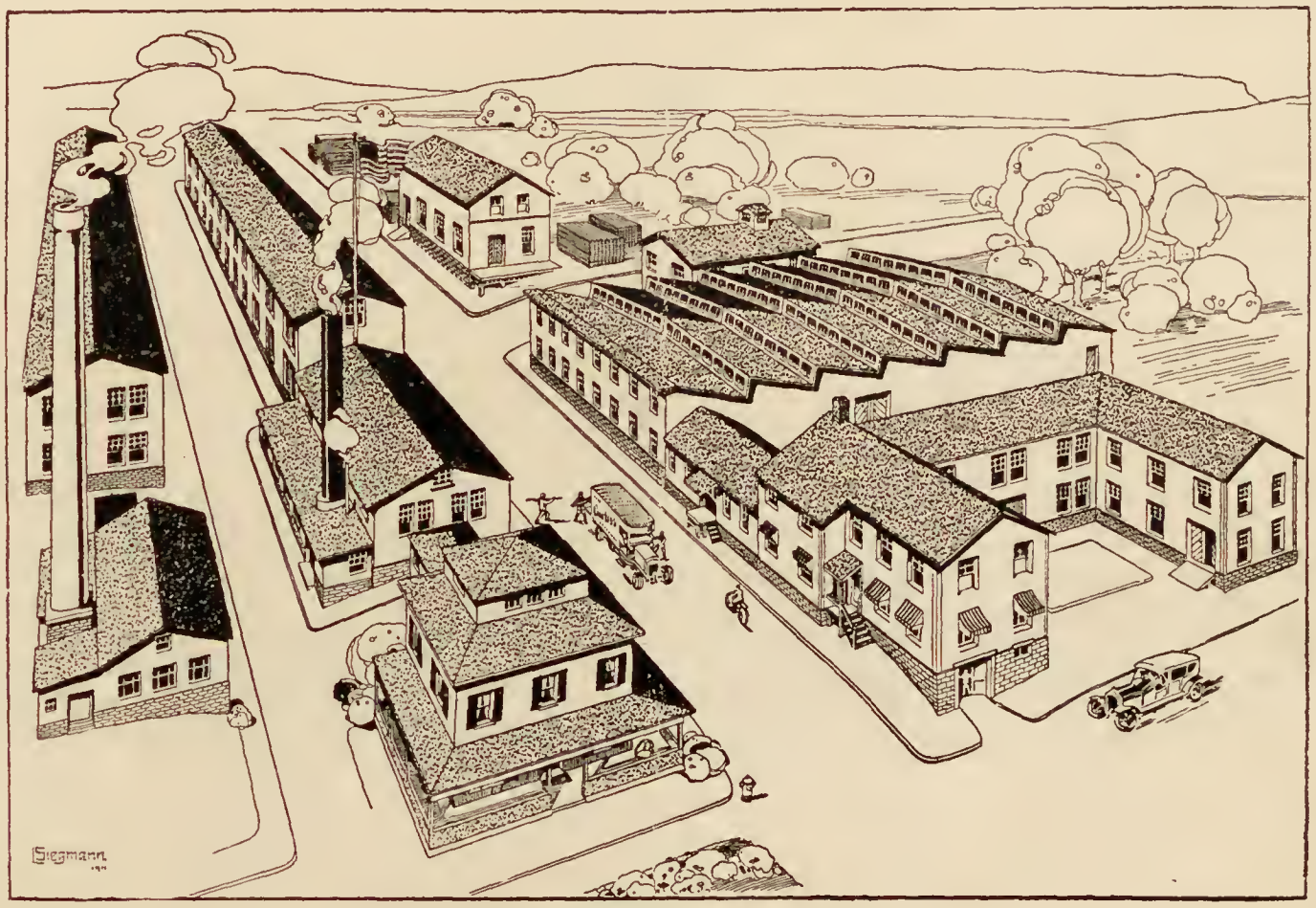
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